Lu C 2, 3, 4, 5

TM 11-5815-210-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

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OPERATOR, ORGANIZATIONAL, FIELD, AND DEPOT MAINTENANCE MANUAL

CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9

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HEADQUARTERS, DEPARTMENT OF THE ARMY

JANUARY 1961

WARNING

HIGH VOLTAGE

is used in

this equipment.

DEATH ON CONTACT

may result if safety precautions

are not observed.

EXTREMELY
DANGEROUS POTENTIALS
EXIST IN THE FOLLOWING UNITS:

Power and signal entrance box	115 volts ac
Power distribution panel	115 volts ac
Converter, Telegraph-Telephone Signal TA–182/U	570 volts dc
Generator Set, Gasoline Engine, Trailer Mounted PU–294/G	115 volts dc
Terminal, Telegraph TH–5/TG	350 volts dc
Teletypewriter TT–4A/TG	115 volts dc
Intercommunication Station LS–147D/FI	270 volts dc

WARNING

VENTILATION IS ESSENTIAL

Central Office, Teletypewriter AN/MGC–9 must be ventilated at all times when occupied.

DON'T TAKE CHANCES!

TM 11-5815-210-15
C 6

CHANGE
NO. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *28 December 1973*

Operator, Organizational, Field, and Depot Maintenance Manual CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9

TM 11-5815-210-15, 12 January 1961, is changed as follows:

Page 3, paragraph 2. Delete paragraph 2 and substitute:

2. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Maintenance forms, records, and reports which are to be used by maintenance personnel at all maintenance levels are listed in and prescribed by TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army)/NAVSUP PUB 378 (Navy)/AFR 71-4 (Air Force)/ and MCO P4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF 361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 (Army)/NAVSUP PUB 459 (Navy)/AFM 75-34 (Air Force)/and MCO P4610.19 (Marine Corps).

Paragraph 2.1 add as follows:

2.1. Reporting of Errors

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028, Recommended Changes to Publications, and forwarded direct to Commander, US Army Electronics Command, ATTN: AMSEL-MA-C, Fort Monmouth, NJ 07703.

Page 5. After paragraph 6 add:

6.1. Items Comprising an Operable Equipment

FSN	QTY	Nomenclature, part No., and mfr code	Usable on code	Fig. No.
5815-021-2086		Central Office, Teletypewriter AN/MGC-9 consisting of:		
5805-263-3326	4	Converter, Telegraph-Telephone Signal TA-182 U (Less case)		
5805-503-2616	2	Switchboard, Signal Assembly TA-207/P		14
5805-503-2660	2	Switchboard, Telephone, Manual SB-86/P (Less case)		14
5805-543-0012	3	Telephone Set TA-312/PT (Less case)		8
5805-246-8734	2	Terminal, Telegraph TH-5/TG		14
5815-198-4438	2	Teletypewriter, TT-4A/TG: (Less carrying case and immersion cover)		14
5410-752-9674		Shelter, Electrical Equipment S-190/MGC-9; S-190A/MGC-9; S-190C/MGC-9 consisting of:		
		NOTE The part number is followed by the applicable 5-digit Federal supply code for manufacturers (FSCM) identified in SB 708-42 and used to identify manufacturer, distributor, or Government agency, etc.		

FSN	QTY	Nomenclature, part No., and mfr code	Usable on code	Fig. No.
		NOTE In usable on code column, number 1 refers to S-190/MGC-9; number 2 refers to S-190A/MGC-9; number 3 refers to S-190B/MGC-9; number 4 refers to S-190C/MGC-9		
7520-753-4807	1	Basket, Wastepaper: Fire Art Metal part No. 36	1,2,3,4	8
6135-120-1020	4	Battery, Dry BA-30	1,2,3	
		Blower Assembly: f/exhaust, left hand; SM-D-467161 (L4Wa1-A469); 80063	4	10
		Blower Assembly: f/exhaust, right hand; SM-D-467162 (L4Wal-A448); 80063	4	10
7920-178-8315	1	Brush, Dusting, Bench: H-B-201, Class B; 81348	1,2,3,4	11
5995-752-2548	1	Cable Assembly Power, Electrical CX-7705/U: 15 ft pwr stub	1,2,3,4	2
4940-752-2474	1	Cable Assembly, Power, Electrical: 15 ft lg; 1 Hubbell No. 9754 conn one end, 1 Hubbell No. 9200 conn other end; SM-D-350987; 80063	1,2,3,4	2
5995-889-0803	1	Cable Assembly, Telephone CX-4760A/U; SC-DL-40468, 80063 (15 ft stub)	1,2,3,4	
5995-752-2566	2	Cable Assembly, Telephone: 4 ft lg o/a; black; 1 ea PJ-047B plug one end, other end stripped & trimmed SM-D-383873-GR III; 80063	1,2,3,4	2
5995-889-0608	2	Cable Assembly, Telephone: 6 ft lg o/a; 1 ea PJ-055R one end, term lugs other end; SM-D-384145-GR II; 80063	1,2,3,4	2
5995-823-3016	2	Cable Assembly, Telephone: 6 ft lg o/a; 1 PJ-055B one end, term lugs other end SM-D-384145-GR I; 80063	1,2,3,4	
5410-752-2435	1	Cable Assembly and Reel: c/o Reel, Cable RC-435/U and 100 ft power cable	1,2,3,4	
5995-823-2715	1	Cable Assembly and Reel: consists of CX-4566A/G (250 ft) and Reel RC-435/U	1,2,3,4	4
7105-269-8436	1	Chair, Folding: AA-C-291 a, Type 1, Class 1; 81348	1,2,3,4	
7110-273-8798	2	Chair, Rotary: (when replacing remove mtg bkt f/use on new chair)	1,2,3,4	14
7910-753-5256	1	Cleaner, Vacuum: hand type; 2830; 29335	1,2,3,4	
6645-973-0178	1	Clock, Aircraft, Mechanical: 3 in face; Wakman part No. 118-12-24-W	1	14
6645-303-4950	1	Clock, Aircraft, Mechanical	2,3	
6645-526-4395	1	Clock, Mechanical: AT-11: when replacing retain mtg bkt f/installing new clock)	4	14
5995-823-3010	4	Cord Assembly, Electrical: 1 ft lg o/a; PJ-047B each end; SM-D-35294-GRI; 80063	1,2,3,4	
7210-753-3043	1	Cushion, Chair: SM-C-350214; 80063	1,2,3,4	
6110-649-8146	1	Distribution Box J-1077A/U	1,2,3,4	10
5120-408-1481		Extractor, Electron Tube: basket type; f/7 pin miniature: No. TP-11-16; 81992	1,2,3,4	9
5120-293-2692		Extractor, Electron Tube: basket type; f/9 pin miniature; No. TP-13-16; 81992	1,2,3,4	9
4140-729-6001	2	Fan, Ventilating, Propeller: f/exhaust; KS802L; 32284	1	10
7110-777-6860	1	File, Visible, Rotary: steel; 1024X; 67179	1,2,3,4	8
4130-542-3327	1	Filter Air Conditioner: p/o shelter; 19-3/4 in w x 15-3/4 in h x 1-7/8 in thk; No. P5; 00736	1,2	11
4130-752-9119	1	Filter, Air Conditioning: DK-31; 05430	3	
5410-875-1245	1	Filter, Air Conditioning: DK-D-41033; 94588	4	
5120-776-9917	13	Grip, Cable, Jaw: bronze, 16 in lg; No. EQA-(6-8P); 95344	1,2,3,4	2
5120-776-9918	12	Grip, Cable Jaw: bronze; 12 in lg; EQA(26S); 95344	1,2,3,4	2
4520-224-7909	2	Heater, Space, Electric: 115 vac; Electromode part No. AAT-15A	1,2,3,4	21
5830-752-5357	1	Inter-Communication Station LS-147C/FI	1,2,3,4	22
5120-224-2510	1	Key, Socket, Headscrew: f/drain plug; "Umbrako" 5/8; 56878	1	11
2540-892-6243	1	Ladder, Vehicle, Boarding MX-3391/G: SC-DL-108736; 80063	1,2,3,4	
6230-729-9614	1	Lantern, Electric: 2106-7; 32572	1,2,3,4	9
5410-752-2525	2	Lead, Electrical: used for grounding; 1-1/2 in w x 122 in lg; SM-B-352166; 80063	1,2,3,4	2
6230-615-5384	1	Light Extension: 25 ft lg; 506KS25-18-2SJ; 08028	1,2,3,4	2
7510-240-1526	1	Pencil, Grease: black	1,2,3,4	
7510-436-5210	1	Pencil, Grease, blue	1,2,3,4	

FSN	QTY	Nomenclature, part No., and mfr code	Usable on code	Fig. No.
7510-324-2086	1	Pencil, Grease, green	1,2,3,4	
7510-174-3205	1	Pencil, Grease, red	1,2,3,4	
7510-264-4612	1	Pencil, Grease, yellow	1,2,3,4	
5120-293-0255	1	Pin Straightener, Electron Tube: tenite body; 2 steel inserts; Gen Cement model	1,2,3,4	9
5120-752-9675	1	Screwdriver, Flat Tip: plastic handle rubber insulated; 10-1/4 in lg; 5/16 in w tip; 2143-6; 72368	1,2,3,4	
7520-162-6178	1	Sharpener, Pencil: Boston type L	1,2,3,4	8
6210-754-8134	9	Shield, Light: f/fluorescent lamp; strene; SM-C-349983; 80063	1,2,3,4	
5410-805-5533	1	Sling, Multiple Leg: f/shelter lifting and tiedown; SC-D-36423; 80063	1,2,3,4	12

Page 65, appendix III. Delete appendix III and substitute:

APPENDIX III
BASIC ISSUE ITEMS LIST (BIIL) AND ITEMS TROOP INSTALLED OR AUTHORIZED LIST (ITIAL)

Section I. INTRODUCTION

1. Scope
This appendix lists only basic issue items required by the crew/operator for installation, operation, and maintenance of Central Office, Teletypewriter AN/MGC-9.

2. General
This Basic Issue Items and Items Troop Installed or Authorized List is divided into the following sections:

a. Basic Issue Items List–Section II. A list, in alphabetical sequence, of items which are furnished with, and which must be turned in with the end item.

b. Items Troop Installed or Authorized List-Section III. Not applicable.

3. Explanation of Columns
The following provides an explanation of columns found in the tabular listings:

a. Illustration. This column is divided as follows:

(1) *Figure number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item number.* Not applicable

b. Federal Stock Number. Indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Part Number. Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications standards, and inspection requirements, to identify an item or range of items.

d. Federal Supply Code for Manufacturer (FSCM). The FSCM is a 5-digit numeric code used to identify the manufacturer, distributor, or Government agency, etc., and is identified in SB 708-42.

e. Description. Indicates the Federal item name and a minimum description required to identify the item.

f. Unit of Measure (U/M). Indicates the standard of basic quantity of the listed item as used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation, (e.g., ea, in., pr, etc.). When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

g. Quantity Furnished with Equipment (Basic Issue Items Only). Indicates the quantity of the basic issue item furnished with the equipment.

4. Special Information
Usable on codes are included in the description column. Uncoded items are applicable to all models. Identification of the usable on codes are as follow:

Code	*Used On*
1	Shelter, Electrical Equipment S-190/MGC-9
2	Shelter, Electrical Equipment S-190A/MGC-9
3	Shelter, Electrical Equipment S-190B/MGC-9
4	Shelter, Electrical Equipment S-190C/MGC-9

Section II. BASIC ISSUE ITEMS LIST

(1) Illustration (A) Fig. no.	(1) Illustration (B) Item no.	(2) Federal stock number	(3) Part number	(4) FSCM	(5) Description	Usable on code	(6) Unit of meas	(7) Qty furn with equip
11		4210-729-8111	276	02461	AXE		EA	1
14		4210-270-4512	5T-2	33525	EXTINGUISHER, FIRE, CARBON DIOXIDE: 5 LB CAP	1,2,3	EA	1
9		4210-383-7128	2-1/2T-2	33525	EXTINGUISHER, FIRE, CARBON DIOXIDE: 2-1/2 LB		EA	1
9		6545-822-3166	SM-C-349935	80063	FIRST AID KIT	1	EA	1
		6545-922-1200			FIRST AID KIT, GENERAL PURPOSE	2,3,4	EA	1
11		5120-793-2027	AW-30	79796	HANDLE, HAMMER HICKORY, 30 IN. LG (RUNNING SPARE ITEM)		EA	1
11		5120-251-4489	15	79796	HAMMER, HAND, BLACKSMITH, DOUBLE FACE TYPE, 8 LB		EA	1
		5340-802-7406	7741/2B	14382	PADLOCK		EA	1
11		5975-224-5260	MX-148/G		ROD, GROUND		EA	2

By Order of the Secretary of the Army:

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USAARENBD (1)
USAMB (10)
AMC (1)
TRADOC (2)
ARADCOM (2)
ARADCOM Rgn (2)
OS Maj Comd (4)
LOGCOMDS (3)
MICOM (2)
TECOM (2)
USACC (4)
MDW (1)
Armies (2)
Corps (2)
HISA (ECOM) (21)
Svc Colleges (1)
USASESS (5)
USAADS (2)
USAFAS (2)
USAARMS (2)
USAIS (2)
USAES (2)
USAINTS (3)
WRAMC (1)
USACDCEC (10)
ATS (1)
Instl (2) except
Fort Gordon (10)
Fort Huachuca (10)
Fort Carson (5)
Ft Richardson (ECOM Ofc) (2)
WSMR (1)
Army Dep (2) except
LBAD (14)
SAAD (30)
TOAD (14)
ATAD (10)
USA Dep (2)
Sig Sec USA Dep (2)
Sig Dep (2)
Sig FLDMS (1)
USAERDAA (1)
USAERDAW (1)
MAAG (1)
USARMIS (1)
Units org under fol TOE:
(1 copy each)
11-15 11-137
11-17 11-158
11-85 11-247
11-87 11-500 AA-AC
11-95 29-134
11-97 29-136
11-117 31-105
11-127 31-106

NG: State AG (3)
USAR:
For explanation of abbreviations used, see AR 310-50.

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C 5

Change No. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., 29 September 1969

mt 11-5-69

Operator, Organizational, Field, and Depot Maintenance Manual

CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9

TM 11-5815-210-15, 12 January 1961, is changed as follows:

NOTE

The parenthetical reference to previous Changes (example: "page 1 of C 3" indicates that pertinent material was published in that Changes.

Page 3. Make the following changes:
(Page 1 of C 3). Delete paragraph 1.1 and substitute.

1.1. Indexes of Publications

a. DA Pam 310-4. Refer to the latest issue of DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are Modification Work Orders (MWO's) pertaining to the equipment.

(Page 1 of C 3 and page 1 of C 4). Delete paragraph and substitute:

2. Forms and Records

a. Report of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army), NAVSUP Pub 378 (Navy), AFR 71-4 (Air Force), and MCO 4030.29 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF 361. Fill out and forward Discrepancy in Shipment Report (DISREP) (SF 361) as prescribed in AR 55-38 (Army), NAVSUP Pub 459 (Navy), AFM 75-34 (Air Force), and MCO P4610.19 (Marine Corps).

d. Reporting of Equipment Manual Improvements. The reporting of errors, omissions and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications) and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AD, Fort Monmouth, N. J. 07703.

Page 63, appendix I (page 7 of C 3 and page 1 of C 4). Delete appendix I and substitute:

5pp

APPENDIX I

REFERENCES

Following is a list of applicable references which are available to the repairman of Central Office, Teletypewriter AN/MGC-9:

DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, and Lubrication Orders.
DA Pam 310-7	Modification Work Orders.
SB 11-573	Painting and Preservation Supplies Available for Field Use for Electronics Command Equipment.
SIG 7 & 8 TA-125/GT	Terminal Box TA 125/GT
TB 746-10	Field Instructions for Painting and Preserving Electronics Command Equipment.
TB SIG 354	Maintenance and Repair Procedures for S-141/G-, S-144/G-, S-280/G-, S-318/G-Type Shelters.
TM 9-213	Painting Instructions for Field Use.
TM 11-2134	Manual Telephone Switchboard SB-86/P; Installation and Operation.
TM 11-2138	Terminal Box TA-125/GT; Telephone Repeating Coil Assembly TA-145/GT; Maintenance Kit MX-842/GT; and Switchboard Signal TA-123/GT.
TM 11-4134	Manual Telephone Switchboard SB-86/P, Field Maintenance.
TM 11-5805-201-12	Organizational Maintenance Manual: Telephone Set TA-312/PT.
TM 11-5805-201-20P	Organizational Maintenance Repair Parts and Special Tool Lists: Telephone Set TA-312/PT.
TM 11-5805-201-35	DS, GS, and Depot Maintenance Manual: Telephone Set TA-312/PT.
TM 11-5805-201-35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Telephone Set TA-312/PT.
TM 11-5805-246-10	Operator's Manual: Terminal, Telegraph TH-5/TG.
TM 11-5805-246-20	Organizational Maintenance Manual: Terminal Telegraph TH-5/TG.
TM 11-5805-246-20P	Organizational Maintenance Repair Parts and Special Tool Lists: Terminal, Telegraph TH-5/TG and TH-5A/TG.
TM 11-5805-246-35	DS, GS, and Depot Maintenance Manual: Terminal, Telegraph TH-5/TG.
TM 11-5805-246-35P	DS, GS, and Depot Maintenance Repair Parts and Special Tool Lists: Terminal, Telegraph TH-5/TG and TH-5A/TG.
TM 11-5805-247-12	Organizational Maintenance Manual (Including Repair Parts and Special Tool Lists: Converter, Telegraph-Telephone Signal TA-182/U.
TM 11-5805-247-35	DS, GS, and Depot Maintenance Manual Including Repair Parts and Special Tool Lists: Converter, Telegraph-Telephone Signal TA-182/U.
TM 11-5805-304-20P	Organizational Maintenance Repair Parts and Special Tools List: Switchboard, Telephone, Manual SB-86/P.

TM 11-5805-304-35P	Field and Depot Maintenance Repair Parts and Special Tools List: Switchboard, Telephone, Manual SB-86/P.
TM 11-5815-206-12	Organizational Maintenance Manual: Teletypewriter Set AN/PGC-1 and Teletypewriters TT-4A/TG, TT-4B/TG, TT-4C/TG, TT-335/TG, and TT-537/G.
TM 11-5815-206-20P	Organizational Maintenance Repair Parts and Special Tool Lists: Teletypewriter Set AN/PGC-1 and Teletypewriters TT-4A/TG, TT-4B/TG, TT-4C/TG and TT-335/TG.
TM 11-5815-206-35	DS, GS, and Depot Maintenance Manual: Teletypewriter Set and Teletypewriters TT-4A/TG, TT-4B/TG, TT-4C/TG, TT-335/TG, and TT-537/G.
TM 11-5815-206-35P/1	DS, GS, and Depot Maintenance Repair Parts and Special Tools Lists: Teletypewriter Set AN/PGC-1 Including Teletypewriters TT-4A/TG, TT-4B/TG, TT-4C/TG, and TT-335/TG.
TM 11-5815-210-25P	Organizational, DS, GS, and Depot Maintenance Repair Parts and Special Tools List: Central Office, Teletypewriter AN/MGC-9.
TM 11-5830-221-12	Operator's and Organizational Maintenance Manual: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5830-221-20P	Organizational Maintenance Repair Parts and Special Tools List: Intercommunication Station LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5830-221-35	Field and Depot Maintenance Manual: Intercommunication Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5830-221-35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Intercommunition Stations LS-147A/FI, LS-147B/FI, LS-147C/FI, and LS-147D/FI.
TM 11-5935-205-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Connectors, Receptacle, Electrical U-187/G and U-187A/G.
TM 11-5965-206-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List: Microphone H-91/U, H-91A/U, Handset-Headset, H-144/U, H-144A/U, H-144B/U, H-144C/U, and Headset-Microphone H-210/G.
TM 11-5965-224-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Handsets H-60/PT and H-165/U.
TM 11-5965-271-50	Depot Maintenance Manual: Headsets TS-9-(*), TS-10-(*), TS-11-(*), TS-12-F, TS-13-(*), TS-14-(*), TS-15-(*), H-22-B/U, H-23-(*)/U and H-60/PT.
TM 11-6110-201-15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Distribution Box J-1077/U and J-1077A/U.
TM 11-6115-230-15	Operator, Organizational, Field and Depot Maintenance Manual: Generator Set, Gasoline Engine, Trailer Mounted PU-474/M.
TM 11-6115-230-25P	Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Generator Set, Gasoline Engine, Trailer Mounted PU-474/M.
TM 11-6625-203-12	Operator and Organizational Maintenance: Multimeter AN/URM-105, Including Multimeter ME-77/U.
TM 38-750	Army Equipment Record Procedures.

Page 67, appendix II, section II. Change Technical Manual number in Remarks column for the following Part or component.

Page	*Part of component*	*Remarks*	
• 4 of C 4	CONVERTER, TELEGRAPH-TELEPHONE TA-182/U.	Delete: Substitute:	TM 11-5805-247-20 TM 11-5805-247-12
	GENERATOR SET, GASOLINE ENGINE, TRAILER MOUNTED, PU-474/M.	Delete: Substitute:	TM 11-6115-230-25P TM 11-6115-230-15
5 of C 4	TELEPHONE SET, TA-312/PT	Delete: Substitute:	TM 11-2155 TM 11-5805-201-12

Appendix III, section II. Make the following changes.

Renumber pages as follows for Changes No. 4.

From	*To*
8	10
10	8

Page 70 (page 8 of C 4). Make the following changes.

Federal stock number column, change "5815-021-2086" to: 5815-945-6066.

Descriptive column. On line following "TECHNICAL MANUAL TM 11-5815-201-15", add:

NOTE

For maintainable equipments listed below, only two each technical manuals are authorized.)

Add the following item in the columns indicated below:

FEDERAL STOCK NUMBER column: 6115-738-6339.

DESCRIPTION column: GENERATOR SET, GASOLINE ENGINE, TRAILER MOUNTED PU-619/M (used with but not part of AN/MGC-9.

EXP column: NX.

QTY AUTH column: 1.

(Page 9 of C 4). Add the following item in the columns indicated below:

FEDERAL STOCK NUMBER column: 7350-071-0808.

DESCRIPTION column: CARD, VISIBLE FILE, ROTARY.

QTY AUTH column: 1.

By Order of the Secretary of the Army

W. C. WESTMORELAND
General, United States Army
Chief of Staff

Official:

KENNETH G. WICKHAM
Major General, United States Army
The Adjutant General

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C of Spt S (1)
USAARENBD (2)
USACDC Agcy (1)
USAMC (1)
USCONARC (5)
ARADCOM (5)
ARADCOM Rgn (2)
OS Maj Comd (4)
LOGCOMB (2) except
  1st LOGCOMD (10)
  9th LOGCOMD (10)
USAMICOM (4)
USATECOM (2)
USASTRATCOM (4)
USAESC (70)
MDW (1)
Armies (2)
Corps (2)
1st Cav Div (5)
Svc Colleges (2)
USASESS (30)
USAADS (2)
USA FA Sch (2)
USAARMS (2)
USAIS (2)
USAES (2)
USAINTS (3)
USATC Armor (2)
USATC Inf (2)
USASTC (2)
WRAMC (1)
GENDEPS (2)
Sig Cen GENDEPS (5)
Sig Dep (12)
USACDCEC (10)
Army Pic Cen (2)
Army Dep (2) except
  LBAD (14)
  SAAD (30)
  TOAD (14)
  LEAD (7)
  SHAD (3)
  NAAD (5)
  SVAD (5)
  CHAD (3)
  ATAD (10)
Sig FLDMS (2)
TOPOCOM (1)
USAERDAC (2)
USAERDAW (13)
USACRREL (2)
MAAG (2)
USARMIS (2)
USMACV (50)
Units org under fol TOE:
  (2 cys each unit)
  11-57
  11-85
  11-87
  11-95
  11-97
  11-117
  11-155
  11-157
  11-247
  11-357
  11-500 (AA-AE)
  11-587
  11-592
  11-597
  31-105
Instl (2) excpt
  Fort Gordon (10)
  Fort Huachuca (10)
  Fort Carson (25)
  Fort Knox (12)
  WSMR (5)

NG: None

USAR: None.

For explanation of abbreviations used see AR 320-50.

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Changes in force: C 3 and C 4

TM 11–5815–210–15
* C 4

Operator, Organizational, Field, and Depot Maintenance Manual

CENTRAL OFFICE, TELETYPEWRITER AN/MGC–9

CHANGE
No. 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *17 November 1964*

TM 11–5815–210–15, 12 January 1961 is changed as follows:

Note. The parenthetical reference to previous changes (*example:* "page 1 of C 3") indicates that pertinent material was published in that change.

Page 3. Delete paragraph 2*c* (page 1 of 3), and substitute:

c. Reporting of Equipment Manual Improvements. The direct reporting by the individual user of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL–MR–MA, Fort Monmouth, N.J. 07703. One information copy will be furnished to the individual's immediate supervisor (officer, noncommissioned officer, supervisor, etc).

Page 63, appendix I (page 9 of C 3). Make the following changes:

Change "TM 11–5965–244–15P" to read TM 11–5965–224–15P. In the last line of the title of TM 11–5965–206–15P, change "Headset-Microphone H–120/G" to read Headset-Microphone H–210/G.

Delete all reference to TM 11–6115–230–15P and substitute:

TM 11–6115–230–25P, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List, Generator Set, Gasoline Engine, Trailer Mounted PU–474/M.

Page 65 (as changed by C 2), appendixes II and III. Delete and substitute:

* This change supersedes C 2, 23 May 1962.

APPENDIX II

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

1. General

a. This section assigns maintenance functions to be performed on components, assemblies, and subassemblies by the lowest appropriate maintenance category.

b. Columns in the maintenance allocation chart are as follows:

(1) *Part or component.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the component. Components, assemblies, and subassemblies are listed in top-down order. That is, the assemblies which are part of a component are listed immediately below that comopnent, and the subassemblies which are part of an assembly are listed immediately below that assembly. Each generation breakdown (components, assemblies, or subassemblies) is listed in disassembly order or alphabetical order.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the categories.

(*a*) *Service.* To clean, to preserve, and to replenish lubricants.

(*b*) *Adjust.* To regulate periodically to prevent malfunction.

(*c*) *Inspect.* To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(*d*) Test. To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(*e*) *Replace.* To substitute serviceable components, assemblies, or subassemblies, for unserviceable components, assemblies, or subassemblies

(*f*) *Repair.* To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes but is not limited to welding grinding, riveting, straightening, and replacement of parts other than the trial and error replacement of running spare type items such as fuses lamps, or electron tubes.

(*g*) *Align.* To adjust two or more components of an electrical system so that their functions are properly synchronized.

(*h*) *Calibrate.* To determine, check, or rectify the graduation of an instrument, weapon, or weapons system or components of a weapons system

(*i*) *Overhaul.* To restore an item to *completely serviceable* condition as prescribed by serviceability standards developed. This is accomplished through employment of the technique of inspect and repair only as necessary (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during the overhaul process.

(*j*) *Rebuild.* To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements us-

ing original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

(3) *Operator, organizational, direct support, general support, and depot maintenance levels.* The symbol X indiactes the category responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Categories higher than these marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column of the maintenance allocation chart indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions are as follows:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *Operator, organizational, direct support, general support, and depot maintenance levels.* The dagger (†) symbol indicates the categories normally allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

2. Maintenance by Using Organizations

When this equipment is used by signal services organizations organic to theater headquarters or communication zones to provide theater communications, those maintenance functions allocated up to an including general support are authorized to the organization operating this equipment.

Section II. MAINTENANCE ALLOCATION CHART

Part or component	Maintenance function	Categories					Tools required	Remarks
		1	2	3	4	5		
CENTRAL OFFICE, TELETYPEWRITER, AN/MGC-9.	Service	X						Exterior & Interior
	Inspect		X					Interior & Exterior
	Test		X				1	Continuity Shelter signal & power circuits except 26 pair cable assemblies. (Tool code 4 replaces Tool code 1 above 2d category.)
					X		4	All tests
	Repair		X				2, 3	Except door panel, gasket, skids, and molding strip replacement
				X			2, 3	Except skids & entrance door panel
					X		2, 3, 5	All repairs
	Rebuild					X	2, 3, 5	Shelter, Electrical Equipment, S-190/MGC-9.
	Overhaul				X		2, 3, 5	
CONVERTER, TELEGRAPH-TELEPHONE, TA-182/U.	Repair							See TM 11-5805-247-20 for Maintenance Allocations.
GENERATOR SET, GASOLINE ENGINE, TRAILER MOUNTED, PU-474/M.	Repair							See TM 11-6115-230-25P for Maintenance Allocations.
SHELTER, ELECTRICAL EQUIPMENT, S-190/MGC-9.	Test		X				1	Continuity, Shelter signal & power circuits, except 26 pair cable assemblies. (Tool code 4 replaces Tool code 1 above, 2d category.)
					X		4	All tests
	Repair		X				2, 3	Except door panel, gasket, skids, and molding strip replacement.
				X			2, 3	Except replacement of skids and entrances door panel.
					X		2, 3, 5	All repairs
	Rebuild					X	2, 3, 5	
	Overhaul				X		2, 3, 5	
CABLE ASSEMBLIES, 26 PAIR	Test				X		4	
	Repair				X		2, 5	Replace cable and repair or replace connector.
CONNECTOR, PLUG, ELECTRICAL, U-185/G.	Test				X		4	
	Repair				X		2, 5	
CABLE ASSEMBLIES, POWER	Repair		X				2, 3	
CLOCK	Repair							Ordnance Item

Section II. MAINTENANCE ALLOCATION CHART — Continued

Part or component	Maintenance function	Categories					Tools required	Remarks
		1	2	3	4	5		
AN/MGC–9—Continued:								
CONNECTOR, RECEPTABLE, ELECTRICAL, U–187/G	Repair							See TM 11–5935–205–15P for Maintenance Allocations.
DISTRIBUTION BOX, J–1077/U, J–1077A/U	Repair							See TM 11–6110–201–15P for Maintenance Allocations.
EXTINGUISHER, FIRE	Repair							Engineers item
INTERCOMMUNICATION STATION, LS–147 A, B, C, D/FI.	Repair							See TM 11–5830–221–12 for Maintenance Allocations.
SWITCHBOARD, TELEPHONE, MANUAL, SB–86/P.	Repair							See TM 11–2134 for Maintenance Allocations.
HEADSET-MICROPHONE, H–91/U	Repair							See TM 11–5965–206–15P for Maintenance Allocations.
TELEPHONE SET, TA–312/PT	Repair							See TM 11–2155 for Maintenance Allocations.
GENERATOR, RINGING, HAND, G–42/PT, G–42A/PT.	Repair							See TM 11–5805–257–12P for Maintenance Allocations.
HANDSET, H–60/PT; H–165/U	Repair							See TM 11–5965–224–15P for Maintenance Allocations.
TELETYPEWRITER SET, AN/PGC–1; TELETYPEWRITER, TT–4, A, B, C/TG.	Repair							See TM 11–5815–206–12 for Maintenance Allocations.
TERMINAL TELEGRAPH, TH–5/TG	Repair							See TM 11–5805–246–20 for Maintenance Allocations.

Section III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

Tools required for allocation	Categories					Tool code	Remarks
	1	2	3	4	5		
AN/MGC-9—Continued:							
MULTIMETER, AN/URM-105	--	†	--	--	--	1	
TOOL KIT, GENERAL MECHANICS	--	†	†	†	†	2	
SOLDERING IRON, TL-117	--	†	†	†	†	3	
MULTIMETER, TS-352/U	--	--	†	†	†	4	
SOLDERING IRON, TL-650/U	--	--	--	†	†	5	

APPENDIX III

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. General

This appendix lists items supplied for initial operation and for running spares. The list includes tools, parts, and material issued as part of the major end item. The list includes all items authorized for basic operator maintenance of the equipment. End items of equipment are issued on the basis of allowances prescribed in equipment authorization tables and other documents that are a basis for requisitioning.

2. Columns

Columns are as follows:

a. Federal stock number. This column lists the 11-digit Federal stock number.

b. Designation by model. The dagger (†) indicates model in which the part is used.

c. Description. Nomenclature or the standard item name and brief identifying data for each item are listed in this column. When requisitioning, enter the nomenclature and description.

d. Unit of issue. The unit of issue is each unless otherwise indicated and is the supply term by which the individual item is counted for procurement, storage, requisitioning, allowances, and issue purposes.

e. Expendability. Nonexpendable items are indicated by NX. Expendable items are not annotated.

f. Quantity authorized. Under "Items Comprising an Operable Equipment", the column lists the quantity of items supplied for the initial operation of the equipment. Under "Running Spare Items" the quantities listed are those issued initially with the equipment as spare parts. The quantities are authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustration. The item number column lists the reference designations that appear on the part in the equipment. These same designations are also used on any illustrations of the equipment. The numbers in the figure number column refer to the illustrations where the part is shown.

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL						DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
											FIGURE NO.	ITEM NO.
							AN/MGC-9 (continued)					
4210-383-7128	†	†	†	†			EXTINGUISHER, FIRE, CARBON DIOXIDE: 2-1/2 cap; Kidde model No. 2-1/2 T-2		NX	1	9	2
5120-408-1481	†	†	†	†			EXTRACTOR, ELECTRON TUBE: basket type; f/7 pin miniature; Kellams model No. TP-11-16			1	9	3
5120-293-2692	†	†	†	†			EXTRACTOR, ELECTRON TUBE: basket type; f/9 pin miniature; Kellems model No. TP-13-16			1	9	3
4140-729-6001	†						FAN, VENTILATING, PROPELLER: f/exhaust; Rotron Mfg type No. KS802L		NX	2	10	2
6545-822-3166	†						FIRST AID KIT: SigC dwg No. SM-C-349935			1	9	4
6545-922-1200		†	†	†			FIRST AID KIT, GENERAL PURPOSE			1		
7110-777-6860	†	†	†	†			FILE, VISIBLE, ROTARY: steel; Zephyr American part No. 1024X			1	8	5
4130-542-3327	†	†					FILTER AIR CONDITIONER: p/o shelter; 19-3/4 in w x 15-3/4 in h x 1-7/8 in thk; Air Maze part No. P5			1	11	3
4130-752-9119			†				FILTER, AIR CONDITIONING: Filt-R-ite part DK-31			1		
5410-875-1245				†			FILTER, AIR CONDITIONING: De Kalb part DK-D-41033			1		
5120-776-9917	†	†	†	†			GRIP, CABLE, JAW: bronze, 16 in lg; Economy model No. EQA-(6-8P)			13	2	3
5120-776-9918	†	†	†	†			GRIP, CABLE JAW: bronze; 12 in lg; Economy model No. EQA(26S)			12	2	3
5120-251-4489	†	†	†	†			HAMMER, HAND: blacksmith, double face type; 8 lb; Woodings-Verona Tool Works part No. 15			1	11	4
4520-224-7909	†	†	†	†			HEATER, SPACE, ELECTRIC: 115 vac; Electromode part No. AAT-15A			2	21	
5830-752-5357	†	†	†	†			INTER-COMMUNICATION STATION LS-147C/FI		NX	1	22	
5120-224-2510	†						KEY, SOCKET, HEADSCREW: f/drain plug; Standard Pressed Steel model "Umbrako" 5/8			1	11	6
2540-892-6243	†	†	†	†			LADDER, VEHICLE, BOARDING MX-3391/G: Sig Dwg SC-DL-108736			1		
6230-729-9614	†	†	†	†			LANTERN, ELECTRIC: Justrite part No. 2106-7			1	9	5
5410-752-2525	†	†	†	†			LEAD, ELECTRICAL: used for grounding; 1-1/2 in w x 122 in lg; Sig dwg SM-B-352166			2	2	4

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
		AN/MGC-9 (continued)					
5995-752-2548	† † † †	CABLE ASSEMBLY POWER, ELECTRICAL CX-7705/U: 15 ft pwr stub			1	2	1
4940-752-2474	† † † †	CABLE ASSEMBLY, POWER, ELECTRICAL: 15 ft lg; 1 Hubbell No. 9754 conn one end, 1 Hubbell No. 9200 conn other end; Sig dwg SM-D-350987			1	2	2
5995-889-0803	† † † †	CABLE ASSEMBLY, TELEPHONE CX-4760A/U: Sig dwg SC-DL-40468 (15 ft stub)			1		
5995-752-2566	† † † †	CABLE ASSEMBLY, TELEPHONE: 4 ft lg o/a; black; 1 ea PJ-047B plug one end, other end stripped & trimmed Sig dwg SM-D-383873-GR III			2	2	
5995-889-0608	† † † †	CABLE ASSEMBLY, TELEPHONE: 6 ft lg o/a; 1 ea PJ-055R one end, term lugs other end; Sig dwg SM-D-384145-GR II			2	2	
5995-823-3016	† † † †	CABLE ASSEMBLY, TELEPHONE: 6 ft lg o/a; 1 PJ-055B one end, term lugs other end Sig dwg SM-D-384145-GR I			2		
5410-752-2435	† † † †	CABLE ASSEMBLY AND REEL: c/o Reel, Cable RC-435/U and 100 ft power cable			1		
5995-823-2715	† † † †	CABLE ASSEMBLY AND REEL: consists of CX-4566A/G (250 ft) and Reel RC-435/U			1	4	
7105-269-8436	† † † †	CHAIR, FOLDING: Fed Spec AA-C-291 a, Type 1, Class 1			1		
7110-273-8798	† † † †	CHAIR, ROTARY: Note: when replacing remove mtg bkt f/use on new chair		NX	2	14	5
7910-753-5256	† † † †	CLEANER, VACUUM: hand type; Hoover part No. 2830		NX	1		
6645-973-0178	†	CLOCK, AIRCRAFT, MECHANICAL: 3 in face; Wakman part No. 118-12-24-W		NX	1	14	7
6645-303-4950	† †	CLOCK, AIRCRAFT, MECHANICAL:		NX	1		
6645-526-4395	†	CLOCK, MECHANICAL: AT-11 (Note: when replacing retain mtg bkt f/installing new clock)			1	14	7
5995-823-3010	† † † †	CORD ASSEMBLY, ELECTRICAL: 1 ft lg o/a; PJ-047B each end; Sig dwg SM-D-352594-GRI			4		
7210-753-3043	† † † †	CUSHION, CHAIR: Sig dwg SM-C-350214			1		
6110-649-8146	† † † †	DISTRIBUTION BOX J-1077A/U		NX	1	10	1
4210-270-4512	† † †	EXTINGUISHER, FIRE, CARBON DIOXIDE: 5 lb cap; Kidde model 5T-2		NX	1	14	6
4210-383-7128	† † † †	EXTINGUISHER, FIRE, CARBON DIOXIDE: 2-1/2 lb cap; Kidde model No. 2-1/2 T-2		NX	1	9	2

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
5815-021-2086		CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9: mobile teletypewriter central office f/switching 120 voice frequency teletypewriter lines; 145-1/2 in lg x 82-3/4 in w x 81-1/2 in h		NX			
		ITEMS COMPRISING AN OPERABLE EQUIPMENT					
Ord thru AGC		TECHNICAL MANUAL TM 11-5815-210-15			2		
5805-263-3326		CONVERTER, TELEGRAPH-TELEPHONE SIGNAL TA-182 U (Less case)		NX	4		
5410-752-9674		SHELTER, ELECTRICAL EQUIPMENT S-190/MGC-9; S-190A/MGC-9; S-190B/MGC-9; S-190C-MGC-9		NX	1	15	
5805-503-2616		SWITCHBOARD, SIGNAL ASSEMBLY TA-207/P		NX	2	14	1
5805-503-2660		SWITCHBOARD, TELEPHONE, MANUAL SB-86/P (Less case)		NX	2	14	2
5805-543-0012		TELEPHONE SET TA-312/PT (Less case)		NX	3	8	2
5805-246-8734		TERMINAL, TELEGRAPH TH-5/TG		NX	2	14	3
5815-198-4438		TELETYPEWRITER, TT-4A/TG: (Less carrying case and immersion cover)		NX	2	14	4
		SHELTER, ELECTRICAL EQUIPMENT S-190/MGC-9; S-190A/MGC-9; S-190B/MGC-9; S-190C/MGC-9					
		NOTE: Model Column 1 refers to S-190/MGC-9, Column 2, refers to S-190A/MGC-9, Column 3, refers to S-190B/MGC-9, Column 4, refers to S-190C/MGC-9.					
4210-727-8111	† † † †	AXE: American Logging Tool Co. part No. 276			1	11	1
7520-753-4807	† † † †	BASKET, WASTEPAPER: Eire Art Metal part No. 36			1	8	4
6135-120-1020	† † †	BATTERY, DRY BA-30			4		
	†	BLOWER ASSEMBLY: f/exhaust, left hand; Sig dwg SM-D-467161 (L4Wal-A469)			1	10	2
	†	BLOWER ASSEMBLY: f/exhaust, right hand; Sig dwg SM-D-467162 (L4Wal-A448)			1	10	2
7920-178-8315	† † † †	BRUSH, DUSTING, BENCH: Fed Spec H-B-201, Class B			1	11	2

SOURCE CODE A	B	C	D	FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY IN UNIT	3RD-FIELD	4TH-FIELD	5TH DEPOT	ILLUSTRATION FIG. NO.	ILLUSTRATION ITEM NO.
						AN/MGC-9 (continued)								
				6230-615-5384	† † † †	LIGHT EXTENSION: 25 ft lg; Woodhead part 506KS25-18-2SJ						1	2	5
				5340-802-7406	† † † †	PADLOCK: Yale & Towne part 7741/2B						1		
				7510-240-1526	† † † †	PENCIL, GREASE: black						1		
				7510-436-5210	† † † †	PENCIL, GREASE: blue						1		
				7510-324-2086	† † † †	PENCIL, GREASE: green						1		
				7510-174-3205	† † † †	PENCIL, GREASE: red						1		
				7510-264-4612	† † † †	PENCIL, GREASE: yellow						1		
				5120-293-0255	† † † †	PIN STRAIGHTENER, ELECTRON TUBE: tenite body; 2 steel inserts; Gen Cement model						1	9	6
				5975-224-5260	† † † †	ROD, GROUND: MX-148/G						2	11	7
				5120-752-9675	† † † †	SCREWDRIVER, FLAT TIP: plastic handle rubber insulated; 10-1/4 in lg; 5/16 in w tip; Bridgeport Hwd Mfr Corp part No. 2143-6						1		
				7520-162-6178	† † † †	SHARPENER, PENCIL: Boston type L						1	8	6
				5210-754-8134	† † † †	SHIELD, LIGHT: f/flourescent lamp; strene; Sig dwg SM-C-349983						9		
				5410-805-5533	† † † †	SLING, MULTIPLE LEG: f/shelter lifting and tiedown; Sig dwg SC-D-36423						1	12	2
						RUNNING SPARES ITEMS								
						CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9								
						SHELTER, ELECTRICAL EQUIPMENT S-190/MGC-9; S-190A/MGC-9; S-190B/MGC-9; S-190C/MGC-9								
				5120-793-2027	† † † †	HANDLE, HAMMER: hickory; 30 in lg; Wooding-Verona Tool Works part No. AW-30						1	11	5
				6240-538-8447	† † † †	LAMP, FLOURESCENT: 20 w; 24 in lg; Sylvania part No. F20T12/SW						2	5	1
				5240-179-1814	† † † †	LAMP, GLOW: MIL type NE-45						3	5	3

FEDERAL STOCK NUMBER	DESIGNATION BY MODEL	DESCRIPTION	UNIT OF ISSUE	EXP	QTY AUTH	ILLUSTRATION	
						FIGURE NO.	ITEM NO.
		AN/MGC-9 (continued)					
6240-299-5876	† † † †	LAMP, GLOW: MIL type NE-34			1	5	2
6240-143-3070	† † † †	LAMP, INCANDESCENT: 50 w; GE part No. 50A/RS			1	5	4
6240-155-7786	† † † †	LAMP, INCANDESCENT: f/lantern; mtd behind reflector; 2.4 v; GE part No. PR-2			1	32	1
6250-299-2884	† † † †	STARTER, FLOURESCENT LAMP: Bryant Elec part No. FS.2			6	32	1

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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USAECOM (7)
USAMICOM (4)
USASMC (2)
MDW (1)
Instl (2) except
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  Ft Hancock (4)
  Ft Gordon (5)
  Ft Huachuca (10)
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USACDCOA (1)
USACDCQMA (1)
USACDCTA (1)
USACDCADA (1)
USACDCARMA (1)
USACDCAVNA (1)
USCDCARTYA (1)
USACDCSWA (1)
USASCC (4)
USATC AD (2)
USATC Armor (2)
USATC Engr (2)
USATC Inf (2)
USASTC (2)
WSMR (5)
USA Tml Comd (1)
Army Tml (1) except OART (5)
POE (1)
Sig Fld Maint Shops (2)
WRAMC (1)
Army Pic Cen (2)
Chicago Proc Dist (1)
AMS (1)
USAERDAA (2)
USAERDAW (13)
GENDEP (OS) (2)
Sig Sec, GENDEP (OS) (5)
Sig Dep (OS) (12)
Army Dep (2) except SAAD (30)
  LXAD, TOAD (14), FTWOAD (10)
  LEAD, NAAD (5), SHAD (3)
  SVAD (5), CHAD (3), ATD (4)
Units org under fol TOE: (2 copies each except as indicated)
  11–16
  11–57
  11–85
  11–87
  11–97
  11–117
  11–155
  11–157
  11–500 (AA–AE) (4)
  11–557
  11–587
  11–592
  11–597
  33–105
  33–106

NG: None.

USAR: None.

For explanation of abbreviations used, see AR 320–50.

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TECHNICAL MANUAL

Operator, Organizational, Field, and Depot Maintenance Manual

CENTRAL OFFICE, TELETYPWRITER AN/MGC–9

TM 11–5815–210–15
CHANGES No. 3

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *12 August 1963*

TM 11–5815–210–15, 12 January 1961, is changed as follows:

Note. The parenthetical reference to previous changes (example: page 1 of C2) indicate that pertinent material was published in those changes.

Page 3. Add paragraph 1.1 after paragraph 1.

1.1. Index of Publications

Refer to the latest issue of DA Pam 310–4 to determine whether there are new editions, changes, or additional publications pertaining to your equipment. DA 310–4 is an index of current technical manuals, technical bulletins, supply bulletins, lubrication orders, and modification work orders which are available through publications supply channels. The index lists the individual parts (–10, –20, –35P, etc). and the latest changes to and revisions of each equipment publication.

Paragraph 2 (page 1 of C2). Delete and substitute:

2. Forms and Records

a. Report of maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38–750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700–58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71–4 (Air Force).

c. Comments on Manual. Forward all comments on this publication direct to: Commanding Officer, U. S. Army Electronics Materiel Support Agency, ATTN: SELMS–MP, Fort Monouth, N. J. DA Form 1598 (Record of Comments on Publications), DA Form 2496 (Disposition Form), or letter may be used.

Page 9, paragraph 9*h*, line 2. Delete TM 11–5805–204–15.

Page 35, paragraph 25. Delete subparagraph *b* and substitute:

b. Securing AN/MGC–9 on Truck (fig. 29).

(1) Install the tiedown ring assembly (A, fig. 29) (part of the sling assembly) above the center support on the cargo bed side rail of the truck.

(2) Use the hooks at the end farthest from the turnbuckles and hook each of the sling assemblies to the tiedown eye of the shelter.

(3) Secure the sling hooks to the tiedown ring (B, fig. 29).

(4) Follow the procedures given in (1) through (3) above to secure the other side of the shelter.

(5) Tighten all turnbuckles evenly by hand: then turn each turnbuckle an additional one-half turn with a bar or rod inserted in the turnbuckle slot.

Caution: **Do not overtighten the turnbuckles.**

(6) Raise and secure the truck tailgate.

Page 37 Delete figure 29 and substitute new figure 29:

Page 45. Delete paragraph 38 and substitute:

38. Scope of Maintenance and Procedures

a. General.

(1) The operator's maintenance consists of first echelon preventive maintenance. Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurence of trouble, to reduce downtime, and to maintain equipment in conbat-serviceable condition. The operator's preventive maintenance is performed daily; specific procedures are provided in paragraph 40.

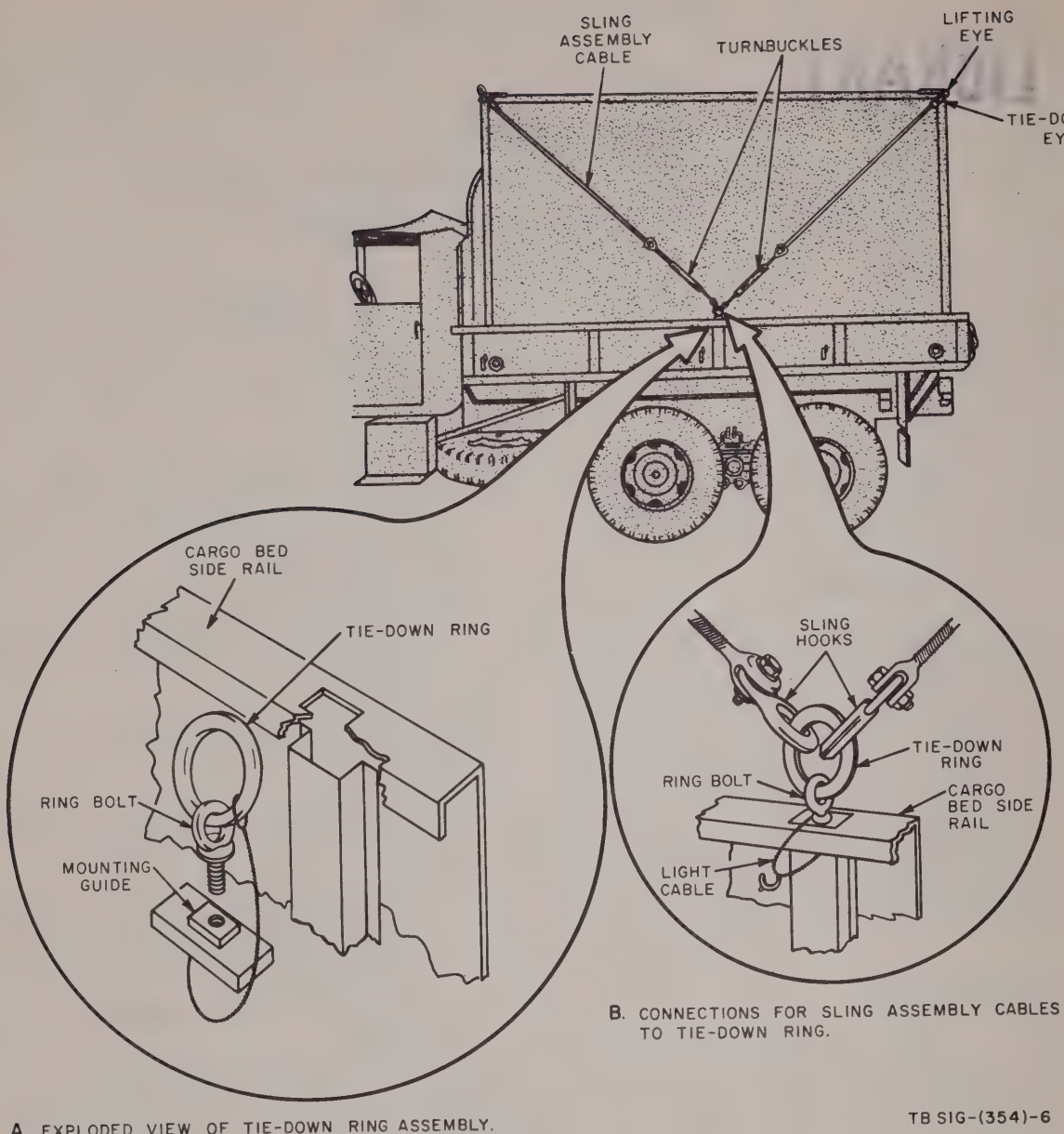

Figure 29. Diagram of sling assembly installation.

(2) Organizational maintenance consists of second echelon preventive maintenance and troubleshooting and repair procedures (par. 54). Second echelon preventive maintenance is performed on a monthly and quarterly basis; specific procedures are provided in paragraphs 41 and 42.

(3) The preventive maintenance checks and services provided in paragraphs 40, 41, and 42 outline inspections to be made at the indicated intervals; they are designed to help maintain equipment in combat-serviceable condition and indicate what items should be checked and how they should be checked. Also included are the procedures for authorized repairs and references to text, illustrations, and other manuals that contain supplementary information.

(4) Defects that cannot be corrected must be reported to higher echelon maintenance personnel. Records and reports of repair

and preventive maintenance must be made in accordance with the procedures given in TM 38–750.

b. Cleaning.

Warning: **Cleaning compound is flammable and its fumes are toxic. Do not use near a flame: provide adequate ventilation.**

(1) Use a dry, clean, lint-free cloth or brush to remove dust and dirt. If necessary, moisten the cloth or brush with Cleaning Compound (Federal stock No. 7930–395–9542) to remove grease, oil, dirt, and dust. After cleaning, wipe dry with a cloth.

Warning: **Compressed air is dangerous and can cause serious bodily harm. It can also cause mechanical damage to the equipment. Do not use compressed air to dry parts where cleaning compound has been used.**

(2) Dry, compressed air, not to exceed 60 pounds per square inch, may be used to remove dirt and dust from inaccessible places.

c. Touchup Painting. Clean rust and corrosion from metal surface by lightly sanding them with fine sandpaper. Brush two thin coats of the proper paint on bare metal to protect it from further corrosion. Refer to the applicable cleaning refinishing practices specified in TM 9–213.

Delete paragraph 40 and substitute:

40. Daily Preventive Maintenance Checks and Services

Sequence No.	Item	Procedures	Reference
		EXTERIOR	
1	Shelter skin.	Check to see that there are no skin punctures, cracks, or open seams that would permit moisture to enter shelter wall.	Fig. 15.
2	Grounding System.	*a.* Check to see that grounding system is properly installed at shelter and trailer.	*a.* Para. 26.
		b. Tighten loose ground lead connections.	*b.* None.
3	Tiedown system.	Tighten turnbuckles to remove slack in sling assembly.	Par. 25*b* and fig. 29.
4	Power and signal entrance box, binding post signal entrance boxes, connector signal entrance box; Distribution Box J–1077A/U and Terminal Box TA–125/GT.	*a.* Remove dirt, grease, and moisture from around binding posts and receptacles.	*a.* None.
		b. Put dust covers and receptacles covers on all unused cable receptacles to keep out moisture, dirt, and sand, and to protect contacts.	*b.* Par. 31.
5	Power and signal cables assemblies.	*a.* Remove grease, oil, and dirt from cable insulation and connectors.	*a.* Figs. 2 and 4.
		b. Tighten all locking collars so that cable is securely attached to its receptacle.	*b.* Par. 31.
		c. Adjust cable grips (fig. 2) so that they effectively relieve strain of cable weight.	*c.* None.
		d. Put connector covers and dust caps on unused cables to keep out moisture, dirt and sand, and to protect contacts.	*d.* Par. 31.
6	Trailer (part of PU-474/M).	*a.* Remove dirt, refuse, grease, oil, and gasoline from trailer floor and around generator sets.	*a.* None.
		b. Perform required lubrication and preventive maintenance.	*b.* TM 9–8226.
7	Generator sets (part of PU–474/M).	*a.* Remove dirt, grease, oil, and gasoline.	*a.* TM 11–6115–230–15.
		b. Tighten loose connections of power cables, grounding cables, and, if used, auxiliary fuel lines.	*b.* None.
		INTERIOR	
8	Signal and power cables, cords, wires, and patching cords.	*a.* Tighten connection of all plugs and connectors at their receptacles and jacks.	*a.* None.
		b. Check to see that insulation is not cut; remove all kinks and strains.	*b.* None.

Sequence No.	Item	Procedures	Reference
9	Lighting system.	Replace defective lamps and fluorescent lamp starters; use spares.	Par. 45.
10	Walls, ceilings, and floor.	Check to see that there are no holes, open seams, or signs of leaks or water seepage.	None.
11	Wastepaper receptacles.	Empty and clean receptacles.	None.
12	Storage drawers.	Remove refuse and articles that are not authorized.	App. III.
13	Batteries and hand lantern.	Replace batteries or lamp if hand lantern fails to light.	Par. 44.
14	Distribution Box J–1077A/U and Terminal Box TA–125/GT (if stored inside shelter).	Perform procedures given in sequence No. 4 above.	
15	Clock.	Wind and set to correct time, if necesszry.	Par. 10*e*.
16	Power distribution panel.	Check to see that voltmeter indicates approximately 115 volts ac, and that ammeter indication is normal for amount of lighting and equipment in use. Replace neon lamps (use spares) that fail to light when associated circuit breaker is operated.	Par. 45 and fig. 33.
17	Communication equipments.	*a*. Perform required daily checks and services for SB–86/P.	*a*. TM 11–2134
		b. Perform required daily checks and services for TH–5/TG.	*b*. TM 11–5805–246–10.
		c. Perform required daily checks and services for TA–182/U.	*c*. TM 11–5805–247–10.
		d. Perform required daily checks and services for TA–213/PT.	*d*. TM 11–2155
		e. Perform required daily checks and services for the TT–4A/TG.	*e*. TM 11–5815–206–12
		f. Perform required daily checks and services for LS–147D/FI.	*f*. TM 11–5830–211–12
18	Equipment operation.	*a*. Check to see that all equipment performs satisfactorily, especially communication equipments.	*a*. Pars. 23, 34, and 35.
		b. Report operation failure of any equipment or circuit.	*b*. TM 38–750.
		c. Replace defective item for which authorized spare parts are provided.	*c*. App. III (for shelter equipment); app. I (for major equipment technical manuals).

Page 46. Delete paragraph 41 and 42 and substitute:

41. Monthly Preventive Maintenance Checks and Services

Sequence No.	Item	Procedures	Reference
		EXTERIOR	
1	Shelter skin and hardware.	Check for blistered paint, pitted and flaking areas, and bare metal spots (such as steps, power and signal entrance box covers, skids, etc).	Par. 38*c*.
2	Grounding system.	Clean ground lug connections with sandpaper and clean cloth.	
3	Tiedown system.	Remove rust, corrosion, and dirt from parts, and paint bare metal areas.	Par. 38*b*, *c*.
4	Shelter door.	*a*. Clean and paint bare metal spots.	*a*. Par. 38*c*.
		b. Tighten loose screws and bolts.	*b*. None.
		c. Lubricate door locks and latches with Grease, Graphite, Aircraft (GGA); lubricate hinges with Lubricating Oil, General Purpose, Preservative	*c*. None.

Sequence No.	Item	Procedures	Reference
		(PL-Special), or Lubricating Oil, Internal Combustion Engine (OE–10).	
		d. Clean air vent filter (fig. 11).	*d.* None.
		e. Put gasket adhesive on loose door and entrance box gaskets.	*e.* None.
5	Power and signal entrance boxes, Distribution Box J–1077A/U, and Terminal Box TA–125/GT.	*a.* Remove corrosion from connectors and wires.	*a.* None.
		b. Lubricate piano-type hinges of covers with oil (PL–Special) or OE–10.	*b.* None.
		c. Paint bare metal spots.	*c.* Par. 38*c*.
6	Power and signal cable assemblies.	*a.* Repair insulation cuts and abrasions with electrical insulation tape.	
		b. Inspect cable layout and relocate cables as necessary so that they are not endangered by, and are not dangerous to vehicles and personnel.	
7	Trailer (part of PU–474/M).	*a.* Tighten mounting bolts that hold generator sets and bracket assemblies of gasoline cans and ground rod.	*a.* None.
		b. Perform required lubrication and preventive maintenance.	*b.* TM 9–8226.
8	Generator sets (part of PU–474/M).	Perform required lubrication and preventive maintenance.	TM 11–6115–230–15.
		INTERIOR	
9	Signal and power cables, cords, wires, and patching cords.	*a.* Tighten screws and clamps that hold wires to terminals or wire forms to racks and shelter walls.	
		b. Repair insulation cuts and abrasions with electrical insulation tape.	
		c. Cover any unconnected bare wires with electrical tape.	
		d. Polish metal plugs (such as those on patching cords, telephone cords, switchboard cords, etc) with metal paste polish (Federal stock No. 3930–269–5270).	
10	Signal, power, and lighting system ducts.	*a.* Tighten loose screws, bolts, and clips.	*a.* None.
		b. Repair or replace, as necessary, defective switches, switchplates, outlets, receptacles, and jacks.	*b.* Par. 58.
11	Lighting and power system.	*a.* Tighten all screws and nuts that hold lighting fixtures, lights, and parts on power distribution panel.	*a.* Pars. 55, 59, and 60.
		b. Replace defective or missing parts in lighting system and on power distribution panel.	*b.* Pars. 55, 59, and 60.
12	Walls, ceiling, and floor	*a.* Remove dirt, grease, corrosion, and mildew.	*a.* Par. 62.
		b. Repair skin punctures and cracked seams.	*b.* TB SIG 354.
13	Cabinets.	Repair or replace broken doors and latches.	
14	Equipment mountings.	*a.* Tighten all loose bolts, nuts, screws, and clamps that hold equipment, racks, frames, shelves, braces, and mounting hardware. Replace missing bolts, nuts, and screws.	
		b. Check to see that equipment mountings, such as racks, frames, shelves, braces, and clamps are not bent, broken, or so out of shape as to endanger equipment or personnel.	
15	Patching panels.	Repair or replace defective jacks.	
16	Batteries and hand lantern.	*a.* Replace batteries that show signs of swelling, leaking, or corrosion.	*a.* Par. 44.
		b. Remove dirt and corrosion from all battery compartments.	*b.* None.
17	Exhaust blowers.	*a.* Lubricate motor at oil points with oil (PL-Special) or (OE–10).	*a.* None.
		b. Remove grease and dirt from motor and fan housing.	*b.* Pars. 47 and 57.

Sequence No.	Item	Procedures	Reference
18	Blackout curtain.	Tighten all mounting screws that hold brackets to ceiling and walls. Repair or replace curtain if torn, ripped, or frayed.	
19	Electric heater.	*a.* Remove dirt and grease from inside and outside of case.	*a.* Pars. 46 and 56.
		b. Repair or replace parts that are loose or fail to operate properly.	*b.* Pars. 46 and 56.
20	Distribution Box J–1077A/U and Terminal Box TA–125/GT (if stored inside shelter).	Perform procedures given in sequence No. 5 above.	
21	Clock.	Replace if correct time cannot be maintained on a daily basis.	
22	Communication equipments.	*a.* Perform preventive maintenance checks and services for SB–86/P.	*a.* TM 11–2134
		b. Perform preventive maintenance checks and services for TH–5/TG.	*b.* TM 11–5805–246–10.
		c. Perform preventive maintenance checks and services for TA–182/U.	*c.* TM 11–5805–247–10.
		d. Perform preventive maintenance checks and services for TA–312/PT.	*d.* TM 11–2155.
		e. Perform preventive maintenance checks and services for TT–4A/TG.	*e.* TM 11–5815–206–12.
		f. Perform preventive maintenance checks and services for LS–147D/FI.	*f.* TM 11–5830–211–12.
23	Equipment performance.	Replace and/or repair any defective or inoperable component.	Par. 43.

42. Quarterly Preventive Maintenance checks and Services

Sequence No.	Item	Procedures	Reference
		GENERAL	
1	Components: *a.* Inventory.	*a.* Inventory equipment; requisition any missing components and running spares.	*a.* App. III.
	b. Location of components.	*b.* Check to see that all components are mounted or stowed in assigned places, except those that are being used (such as power cables, signal cables, distribution boxes, etc.	*b.* Figs. 8 through 12.
	c. Publications.	*c.* Requisition all operator and organizational maintenance manuals and all parts manuals covering AN/MGC–9 and its components, that are not on hand or in usable condition (including all current changes).	*c.* DA Pam 310–4 and par. 2.1.
2	Modification work orders.	Check to see whether any MWO's are required for AN/MGC–9 or its components. Check equipment to see if applicable MWO's have been applied and MWO number is stamped on equipment as required. Perform modification, or request modification as applicable.	See applicable MWO. See DA Pam 310–4 for MWO listing; refer to TM 38–750.
		EXTERIOR	
3	Shelter skin and hardware.	Repair skin punctures, cracks, or open seams that would permit moisture to enter shelter wall.	TB SIG 354.
4	Grounding system.	Replace ground rod if ground lead lug cannot be securely tightened. Replace ground lead if it is cut, coorrded, or broken.	

Sequence No.	Item	Procedures	Reference
5	Shelter door.	Replace defective or missing rubber gaskets, or those that do not provide watertight seal. Replace broken door hinges or latches.	
6	Power and signal entrance boxes, binding post and connector, signal entrance boxes and distribution and terminal boxes.	*a.* Carefully remove sand, moisture, and dirt from among contacts of 26-pair cable receptacles.	*a.* None.
		b. Tighten locknuts, screws, and bolts that hold receptacles and binding posts.	*b.* None.
		c. Replace all defective parts (such as cover gaskets, cover assemblies rubber caps on binding posts, binding posts, cable receptacles, etc).	*c.* Par. 61.
7	Power and signal cable assemblies.	Replace cable assemblies in which wiring, insulation, or connectors are defective.	Par. 61.
		INTERIOR	
8	Signal and power cables, cords, wires, and patching cords.	Dress all cabling, wires, and cords neatly: use cable and cord clamps provided in shelter or use electrical insulation tape and twine. Repair or replace defective cables, cords, wires, and patching cords.	
9	Walls, ceiling, and floor.	Paint blistered, pitted or flaking areas and all bare metal spots.	Par. 38*c*.
10	Fire extinguisher.	*a.* Refill if weight of cylinder is less than that indicated on nameplate, or if cylinder valve seal is broken.	*a.* Appropriate maintenance personnel.
		b. Replace extinguisher if valve assembly is damaged.	*b.* App. III.
11	First aid kit.	Replace if case is broken or damaged. Replace parts that have been used. (See parts list inside cover of first aid kit.)	
12	Distribution Box J–1077A/U and Terminal Box TA–125/GT (if stored inside shelter).	Perform procedures given in sequence No. 6 above.	
13	Chair and chair cushion.	Repair or replace chair if parts are bent or broken, or if chair is unsafe for use. Repair or replace cusion that is torn or cut, or has split seams or exposed padding.	
14	Axe and sledge hammer.	Replace handle if it is broken or split, or does not fit tightly.	
15	Ladder.	Paint blistered, pitted, or flaking areas and all bare metal areas. Repair or replace if steps, frame, or parts are bent or broken, or if ladder is unsafe for use.	Par. 38*c*.
16	Trailer (part of PU–474/M).	Perform required lubrication and preventive maintenance.	TM 9–8226.
17	Generator sets (part of PU–474/M).	Perform required lubrication and preventive maintenance.	TM 11–6115–230–15.

Page 63 appendix I (page 1 of C2). Delete in its entirety and substitute:

APPENDIX I

REFERENCES

Following is a list of applicable references which are available to the repairman of Central Office, Teletypewriter AN/MGC–9:

AR 320–5	Dictionary of United States Army Terms.
AR 320–50	Authorized Abbreviations and Brevity Codes.
AR 750–5	Organization, Policies, and Responsibilities for Maintenance Operation.
DA Pam 108–1	Index of Army Motion Pictures, Film Strips, Slices, and Phono Recordings.

DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
DA Pam 310–21	Index of Supply Manuals; Signal Corps.
FM 21–5	Military Training.
FM 21–6	Techniques of Military Instruction.
FM 21–30	Military Symbols.
MWO SIG 197	Modification of Teletypewriters TT–4/TG, TT–4A/TG, TT–98/FG, TT–99/FG, TT–100/FG, TT–172/GG, and TT–173/TG, Teletyperwriter Sets AN/FGC–20, AN/FGC–20X, AN/FGC–21, and AN/PGC–1; and all Other Applicable Kleinschmidt Model Teletypewriter Page Printers to Provide an Automatic Teletypewriter Ribbon Re-inking Device.
SB 11–100–99	Serviceability Standards for Teletypewriter TT–4/TG and TT–4A/TG.
SB 11–100–119	Serviceability Standards for Converter, Telegraph-Telephone Signal TA–182/U.
SB 11–100–155	Serviceability Standards for Manual Telephone Switchboard SB–86/P.
SB 11–100–156	Serviceability Standards for Telephone Set TA–312/PT.
SB 11–203	Supply of Telephone Sets TA–312/PT, TA–43/PT and EE–8.
SB 11–513	Multimeter AN/URM–105.
SB 11–540	Multimeters AN/URM–105 and TS–352/U.
SIG 7 & 8 TA–125/GT	Terminal Box TA–125/GT.
TB SIG 271	Lubrication of Tactical Teletypewriter Equipment, Teletypewriters TT–4( )/TG, TG–37–( ), and Reperforator Transmitters TT–76( )/GGC (component of Teletypwriter Set AN/GGC–3), TG–26–( ), and TG–27–( ).
TM 9–213	Painting Instructions for Field Use.
TM 11–2134	Manual Telephone Switchboard SB–86/P; Installation and Operation.
TM 11–2138	Terminal Box TA–125/GT; Telephone Repeating Coil Assembly TA–145/GT; Maintenance Kit MX–842/GT; and Switchboard Signal TA–123/GT.
TM 11–2155	Telephone Set TA–312/PT.
TM 11–4134	Manual Telephone Switchboard SB–86/P, Field Maintenance.
TM 11–5805–201–20P	Organizational Maintenance Repair Parts and Special Tool Lists: Telephone TA–213/PT.
TM 11–5805–201–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Telephone Set TA–312/PT.
TM 11–5805–246–10	Operator's Manual: Terminal, Telegraph TH–5/TG.
TM 11–5805–246–20	Organizational Maintenance Manual: Terminal, Telegraph TH–5/TG.
TM 11–5805–246–20P	Organizational Maintenance Repair Parts and Special Tool Lists: Terminal, Telegraph TH–5/TG.
TM 11–5805–246–35	Field and Depot Maintenance Manual: Terminal, Telegraph TH–5/TG.
TM 11–5805–246–35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Terminal, Telegraph TH–5/TG.
TM 11–5805–247–10	Operator's Manual: Converter, Telegraph-Telephone Signal TA–182/U.
TM 11–5805–247–20	Organizational Maintenance Manual: Converter, Telegraph-Telephone Signal TA–182/U.
TM 11–5805–247–20P	Organizational Maintenance Repair Parts and Special Tools List: Converter, Telegraph-Telephone Signal TA–182/U.
TM 11–5805–247–35	Field and Depot Maintenance Manual: Converter, Telegraph-Telephone Signal TA–182/U.
TM 11–5805–247–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Converter, Telegraph-Telephone Signal TA–182/U.
TM 11–5805–257–12P	Operator and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Generators, Ringing, Hand G–42/PT, and G–42A/PT.
TM 11–5805–257–35P	Field and Depot Maintenance Repair Parts and Special Tool List: Generators, Ringing, Hand G–42/PT, and G–42A/PT.

TM 11–5805–304–20P	Organizational Maintenance Repair Parts and Special Tools List: Switchboard, Telephone, Manual SB–86/P.
TM 11–5805–304–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Switchboard, Telephone, Manual SB–86/P.
TM 11–5815–206–12	Operator and Organizational Maintenance Manual: Teleptyewriter Set AN/PGC–1 and Teletypewriters TT–4A/TG, TT–4B/TG, TT–4C/TG, and TT–335/TG.
TM 11–5815–206–20P	Organizational Maintenance Repair Parts and Special Tool Lists: Teletypewriter Set AN/PGC–1 and Teletypewriters TT–4A/TG, TT–4B/TG, TT–4C/TG, and TT–335/TG.
TM 11–5815–206–35	Field and Depot Maintenance: Teletypewriter Set AN/PGC–1 and Teletypewriters TT–4A/TG, TT–4B/TG, TT4C/TG, and TT–335/TG.
TM 11–5815–206–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Teletypewriter Set AN/PGC–1 (including Teletypewriters TT–4A/TG and TT–4B/TG).
TM 11–5815–210–25P	Organizational, Field and Depot Maintenance Repair Parts and Special Tools List: Central Office, Teletypewriter AN/MGC–9.
TM 11–5830–221–12	Operator's and Organizational Maintenance Manual: Intercommunication Stations LS–147A/FI, LS–147B/FI, LS–147C/FI, and LS–147D/FI.
TM 11–5830–221–20P	Organizational Maintenance Repair Parts and Special Tools List: Intercommunication Station LS–147A/FI, LS–147B/FI, LS–147C/FI and LS–147D/FI.
TM 11–5830–221–35	Field and Depot Maintenance Manual: Intercommunication Stations LS–147A/FI, LS–147B/FI, LS–147C/FI, and LS–147D/FI.
TM 11–5830–221–35P	Field and Depot Maintenance Repair Parts and Special Tool Lists: Intercommunication Stations LS–147A/FI, LS–147B/FI, LS–147C/FI and LS–147D/FI.
TM 11–5935–205–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Connectors, Receptacle, Electrical U–187/G and U–187A/G.
TM 11–5965–206–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List: Microphone H–91/U, H–91A/U, Handset-Headset H–144/U, H–144A/U, H–144B/U, H–144C/U, and Headset-Microphone H–120/G.
TM 11–5965–244–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists and Maintenance Allocation Chart: Handsets H–60/PT and H–165/U.
TM 11–5965–271–50	Depot Maintenance Manual: Handsets TS–9–(*), TS–10(*), TS–11–(*), TS–12–F, TS–13–(*), TS–14–(*), TS–15–(*), H–22–B/U, H–23–(*)/U, and H–60/PT.
TM 11–6110–201–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart, Distribution Box J–1077/U and J–1077A/U.
TM 11–6115–230–15	Operator, Organizational, Field and Depot Maintenance Manual: Generator Set, Gasoline Engine, Trailer Mounted PU–474/M.
TM 11–6115–230–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tool Lists: Generator Set, Gasoline Engine, Trailer Mounted PU–474/M.
TM 11–6625–203–12	Operation and Organizational Maintenance: Multimeter AN/URM–105, including Multimeter ME–77/U.
TM 38–750	The Army Equipment Record System and Procedures.

Page 70 (page 7 of C 2). Column 2. Change 6115–5614 to 6115–823–2425.
Column 4. Change UP–294/G to PU–474/M.
(Page 8 of C 2). Column 2. Reference 5995–823–3016.

Column 4. After 6 ft lg o/a add black cord.
Column 7. Change 6 to 2.
Column 8. Add 2.
Column 2. Reference 5995–823–3010.
Column 3, subcolumn 2. Add †.
Column 4. Change 2 ft lg o/a to 1 ft lg o/a. Add red.
Column 7. Change 1 to 4.
Column 8. Add 3.

Add the following items in the columns indicated below. Page numbers apply to 2C.

Page	2	3		4	7	8
		1	2			
				ITEMS COMPRISING AN OPERABLE EQUIPMENT		
8	5995–889–0608	†	†	CABLE ASSEMBLY, TELEPHONE: 6 ft lg o/a; red cord; 1 PJ–055R one end, term lugs other end; St. Carl part 666186–146.	2	2
9	7510–240–1526	†	†	PENCIL, GREASE: black	1	9
	7510–436–5210	†	†	PENCIL, GREASE: blue	2	9
	7510–275–7212	†	†	PENCIL, GREASE: green	1	9
	7510–174–3205	†	†	PENCIL, GREASE: red	1	9
	7510–264–4612	†	†	PENCIL, GREASE: yellow	1	9

(Page 9 of C 2), column 2, 5410–783–6250. Delete item in its entirety.

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EARLE G. WHEELER,
General, United States Army,
Chief of Staff.

Official:
J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

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Ft Worth (8)
Lexington (12)
Sacramento (28)
Tobyhanna (12)
USA Elct RD Actv, White Sands (13)
USA Elct RD Actv, Ft Huachuca (2)
USA Trans Tml Comd (1)
Army Tml (1)
POE (1)
USAOSA (1)
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USA Mbl Spt Cen (1)
USA Elct Mat Agcy (12)
Chicago Proc Dist (1)
USARCARIB Sig Agcy (1)
Sig Fld Maint Shop (3)
Units org under fol TOE (2 cy ea UNOINDC)
11–7
11–15
11–16
11–57
11–85
11–87
11–95
11–97
11–98
11–117
11–155
11–157
11–500 (AA–AC) (4)
11–557
11–587
11–592
11–597
33–105
33–106

NG: None.
USAR: None.
For explanation of abbreviations used see AR 320–50.

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TECHNICAL MANUAL
No. 11-5815-210-15

HEADQUARTERS,
DEPARTMENT OF THE ARMY
WASHINGTON 25, D. C., *12 January 1961*

Operator, Organizational, Field, and Depot Maintenance Manual

CENTRAL OFFICE, TELETYPEWRITER AN/MGC-9

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CHAPTER 1
INTRODUCTION

Section I. GENERAL

cope

is manual describes Central Office, Teletype-
r AN/MGC–9 (fig. 15) and covers its installa-
operation, theory, and maintenance. It also
des instructions for installing components not
ded as part of Shelter, Electrical Equipment
)/MGC–9 (shelter). Except for the shelter
9*a*) and its components (par. 10), major com-
nts of the AN/MGC–9 are covered in detail in
respective technical manuals (app. I).

orms and Records

Unsatisfactory Equipment Report. Fill out and
rd DA Form 468 (Unsatisfactory Equipment
rt) or DD Form 787–1 (Electronic Failure
rt—Signal Equipment) to the Commanding
r, U. S. Army Signal Materiel Support Agency,
N: SIGMS–ML, Fort Monmouth, N. J., as
ribed in AR 700–38 (for DA Form 468) or in
00–39 (for D D Form 787–1).

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700–58.

c. Preventive Maintenance Forms. Prepare preventive maintenance forms for the major components of Central Office, Teletypewriter AN/MGC–9, as specified in their respective technical manuals (app. I).

d. Comments on Maintenance Allocation Chart. Forward DA Form 2028 (Recommended Changes to DA Technical Manual Parts Lists or Supply Manuals 7, 8, or 9), direct to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS–ML, Fort Monmouth, N. J., with comments on appendix II.

e. Comments on Manual. Forward all other comments concerning this publication direct to the Commanding Officer, U. S. Army Signal Materiel Support Agency, ATTN: SIGMS–PA2d, Fort Monmouth, N. J.

Section II. DESCRIPTION AND DATA

urpose and Use

(fig. 1)

ntral Office, Teletypewriter AN/MGC–9, is an
r vehicular-transportable assemblage used to
de switching facilities in an area-type communi-
ns system. The AN/MGC–9 provides facilities
terconnect or terminate 120 voice-frequency
eletypewriter circuits. The AN/MGC–9 may
be used as an alternate telephone switching
al. Separate facilities are provided for inter-
r communication within the signal area.
nating-current (ac) power may be obtained
Generator Set, Gasoline Engine, Trailer
nted PU–294/G, commercial power facilities,
entral power source (such as Trailer- or Truck-
nted Diesel Engine Generator Sets PU–407/M
J–408/M.

4. Technical Characteristics

Power requirements	115 v, 60 cps, single-phase, 3-wire.
Power consumption (maximum):	
S–190/MGC–9 components:	
Lights	280 watts.
Exhaust blowers	300 watts.
Electric heaters	3,000 watts.
Intercommunication Station LS–147D/FI	32 watts.
Major components:	
Terminal, Telegraph TH–5/TG (2)	120 watts.
Teletypewriter TT–4A/TG (2)	320 watts.
Converter, Telegraph-Telephone Signal TA–182/U (4)	160 watts.
Total	4,212 watts.
Intra-area communications facilities:	
Local telephone circuit	TA–312/PT.
Intercommunication circuit	LS–147D/FI.

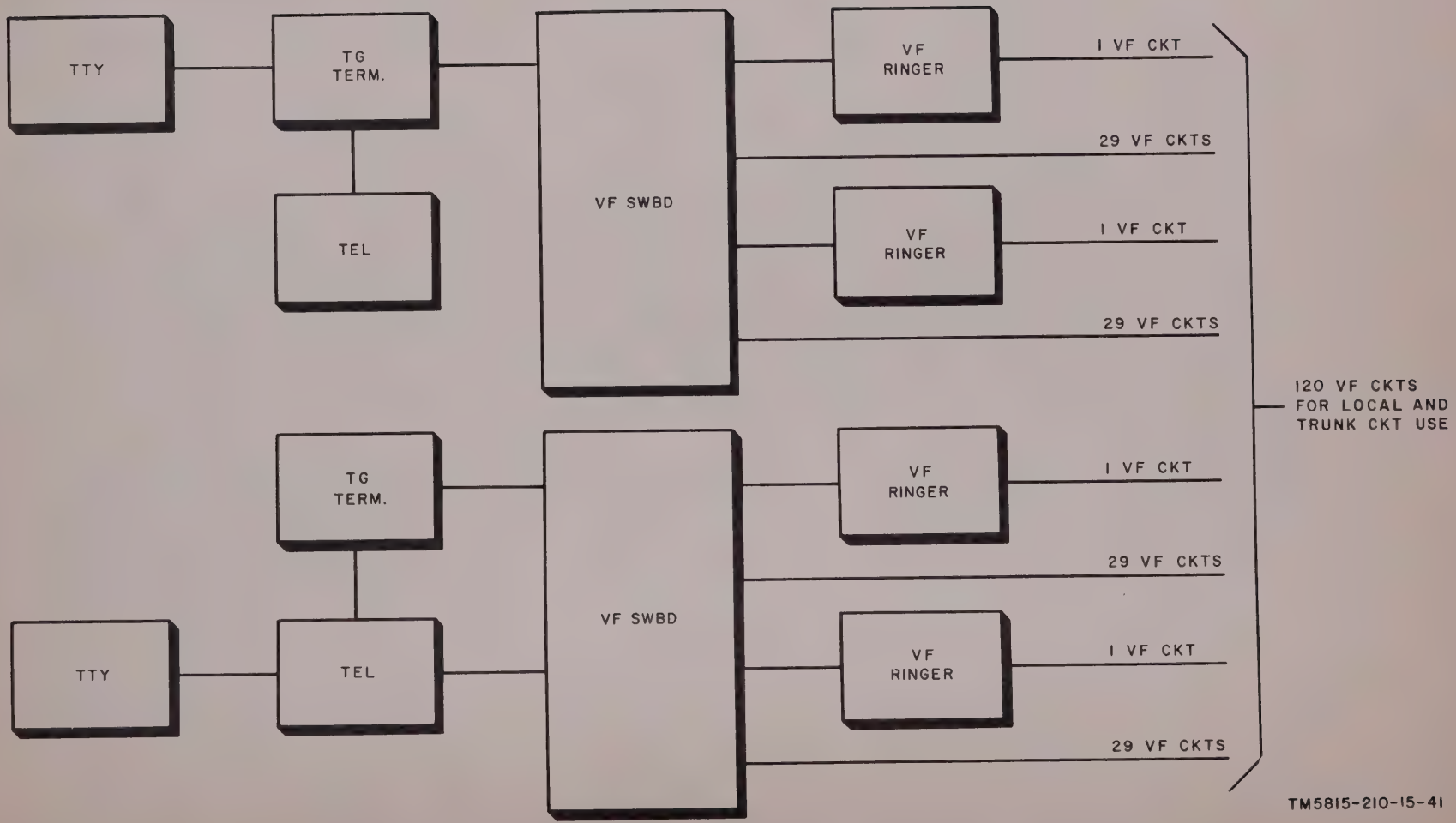


Figure 1. Central Office, Teletypewriter AN/MGC–9, typical equipment arrangement block diagram.

Veight:
AN/MGC–9 (less PU–294/G)----2,754 lb.
PU–294/G----5,000 lb.
S–190/MGC–9----1,200 lb.
Dimensions of S–190/MGC–9 (outside):
Length----138 in.
Width----80 in.
Height----77½ in.

5. Major Components of Central Office, Teletypewriter AN/MGC–9

Quantity	Item	Figure
1	Shelter, Electrical Equipment S–190/MGC–9	15
2	Switchboard, Telephone, Manual SB–86/P	14
2	Switchboard, Signal Assembly TA–207/P	14
2	Terminal, Telegraph TH–5/TG	14
4	Converter, Telegraph-Telephone Signal TA–182/U.	8
3	Telephone Set TA–312/PT	8, 14
2	Teletypewriter TT–4A/TG	14
1	Terminal Box TA–125/GT	8
1	Trailer Mounted Gasoline Engine Generator Set PU–294/G including:	
	3 filter tubes	
	10 gasoline cans	
	2 Gasoline Engine Generator Sets PU–286/G.	
	1 Trailer, Cargo, M 105A1	

6. Components of Shelter, Electrical Equipment S–190/MGC–9

Quantity (ea)	Item	Figure
1	Axe	11
1	Blackout curtain assembly	11
1	Cable assembly, power (100-ft), on reel	12
1	Cable Assembly, Telephone CX–4566/G (250 ft) With Reel RC–435/U.	12
2	Cable stub, power (15-ft)	2
1	Cable Assembly, Telephone CX–4760/U (15-ft)	2
1	Chair cushion	
1	Desk tray	11
1	Drain plug wrench	11
1	Droplight (25-ft)	2
1	Distribution Box J–1077A/U	10
2	Electric heater	9, 10
1	Fire extinguisher (2½-lb)	9
1	Fire extinguisher (5-lb)	14
1	First aid kit	9
1	Folding chair	9
5	Grease pencil	9
2	Ground rod	11
2	Ground strap	
1	Hand brush	11
1	Hand lantern	9
1	Intercommunication Station LS–147D/FI	8
1	Ladder assembly	12
1	Line cord with duplex receptacle (15-ft)	2
4	Patch cord, red (5-in.)	3
12	Power cable grip	2
1	Screwdriver	9
13	Signal cable grip	2
1	Sledge hammer	11
1	Sledge handle, spare	11
2	Swivel chairs	14
2	Telephone cord (4-ft)	2
2	Teletypewriter connecting cord, red (6-ft)	2
2	Teletypewriter connecting cord, black (6-ft)	2
6	Tiedown strap	2
1	Tool roll kit including:	2
	1 bag with 10 pockets	
	1 adjustable wrench, 8-in.	
	1 Allen wrench set	
	1 Knife TL–29	
	1 lineman's pliers	
	1 long-nosed pliers	
	1 screwdriver, 2-in.	
	1 screwdriver, 4-in.	
	1 screwdriver, 6-in.	
	1 socket wrench set	
	1 vise grip pliers, 7-in.	
1	Tube pin straightener	9
1	Tube puller, 7-pin	9
1	Tube puller, 9-pin	9
1	Vacuum cleaner (dwr No. 1)	
1	Wastebasket	8
1 set	Technical manuals for major components (par. 5).	8
1 set	Running spares consisting of:	5
	2 fluorescent lamps, 20 w (24 in.)	13
	6 fluorescent lamp starters, FS–2	13
	3 glowlamps, NE–45	
	2 incandescent lamps, 50 w	
	1 power indicator neon lamp NE–34	

7. Common Names

The following is a list of items to which common names have been assigned:

Item	Common name
Cable Assembly, Telephone CX–4566/G (250 ft).	26-pair cable
Connector, Plug, Electrical U–185B/G (p/o CX–4566/G).	26-pair connector
Connector, Receptacle, Electrical U–187A/G (p/o power and signal entrance box and connector signal entrance box C).	26-pair receptacle
Shelter, Electrical Equipment S–190/MGC–9.	Shelter

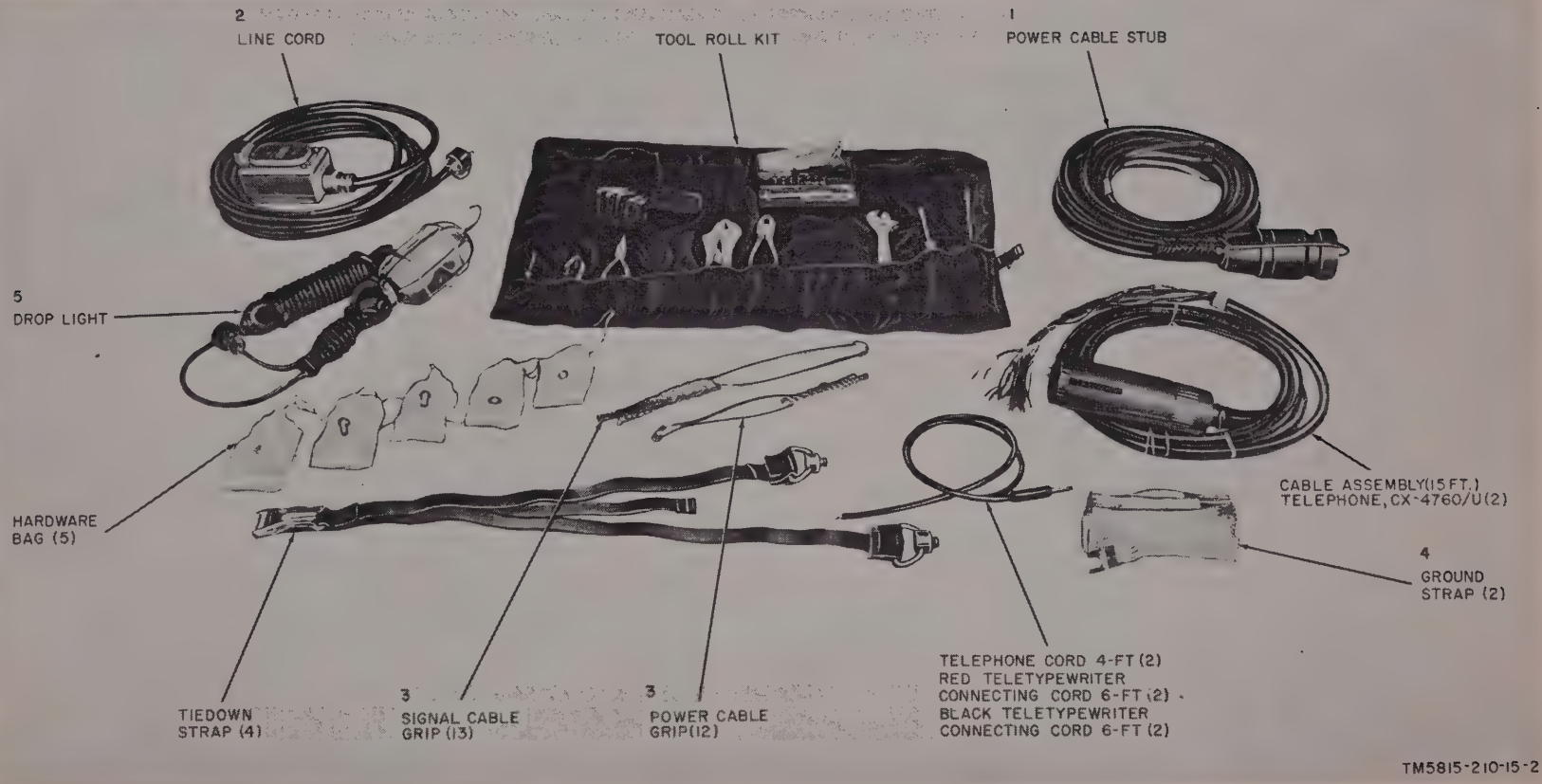
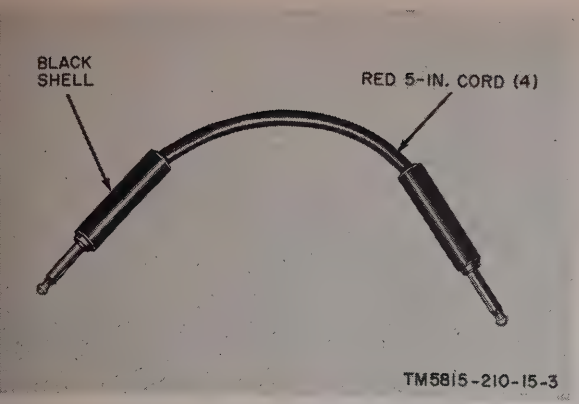
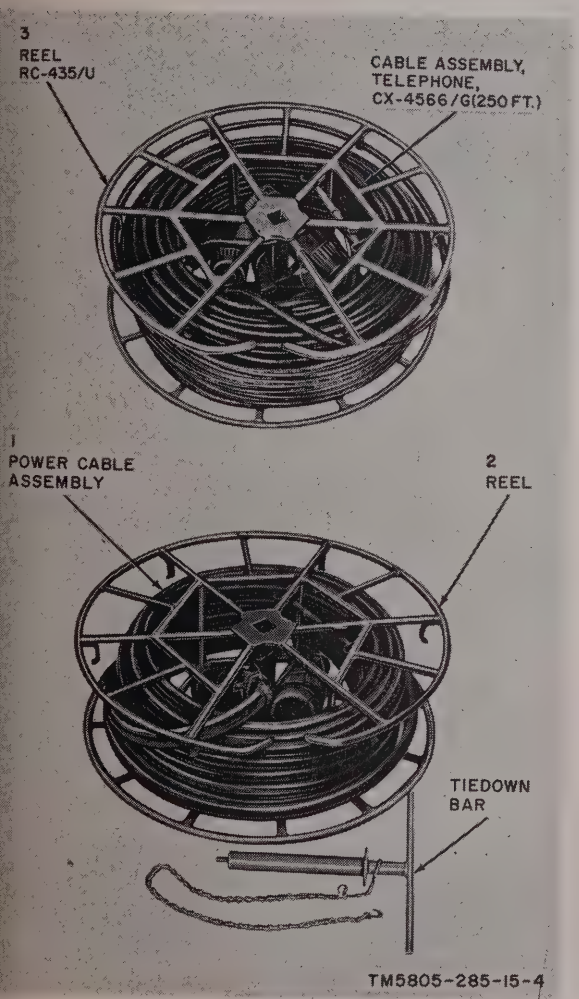


Figure 2. Shelter, Electrical Equipment, S–190/MGC–9, tools and accessories.



igure 3. Shelter, Electrical Equipment, S–190/MGC–9, patch cord.



ıre 4. Shelter, Electrical Equipment, S–190/MGC–9, cable assemblies and reels.

8. Description of Central Office, Teletypewriter AN/MGC–9

Components of the AN/MGC–9 (pars. 5 and 6), less the PU–294/G, are housed in Shelter, Electrical Equipment S–190/MGC–9. The major components are described in paragraph 9; the shelter components are described in paragraph 10. The signal and power entrance boxes are provided with receptacles and binding posts for making external cable and field wire connections (figs. 15–19). Figures 6 and 7 are interior views of the AN/MGC–9; the locations of interior components are shown in figures 8 through 14.

9. Description of Major Components of the AN/MGC–9

a. Shelter, Electrical Equipment S–190/MGC–9. The S–190/MGC–9 (fig. 15) contains the equipments (less PU–294/G) that comprise an AN/MGC–9 (pars. 5 and 6). The shelter can be transported by helicopter or truck and is fully insulated, watertight, and airtight. Two light tight exhaust blower vents (not shown) with hinged covers and rain shields are located in the front wall. A two-section door, located at the rear, permits entrance to the shelter. The upper section of the door is used while the shelter is truck mounted and the truck tailgate is up.

(1) *Lighting.* Nine 20-watt fluorescent lights, arranged in three rows, and two incandescent spotlights, provide lighting for the shelter; two spare fluorescent lamps and six spare starters are clip mounted (fig. 13). A POWER INDICATOR NEON LAMP (fig. 11) lights to show that ac power is connected to the shelter.

(2) *Power and signal wiring.* Power wiring (fig. 38) and signal wiring (fig. 39) within the shelter are distributed separately in metal ducts which are equipped with removable covers. Within the shelter, ac power is routed through circuit-breaker switches in the power distribution panel to the individual circuits. Convenience and equipment ac power receptacles are provided in the power duct (figs. 8, 9, 11, and 13).

(3) *Power and signal entrance box.* The power and signal entrance box is located in the exterior rear wall (fig. 15). It contains receptacles to connect power cables and 26-pair cables (fig. 16). It also contains binding posts for terminating circuits to

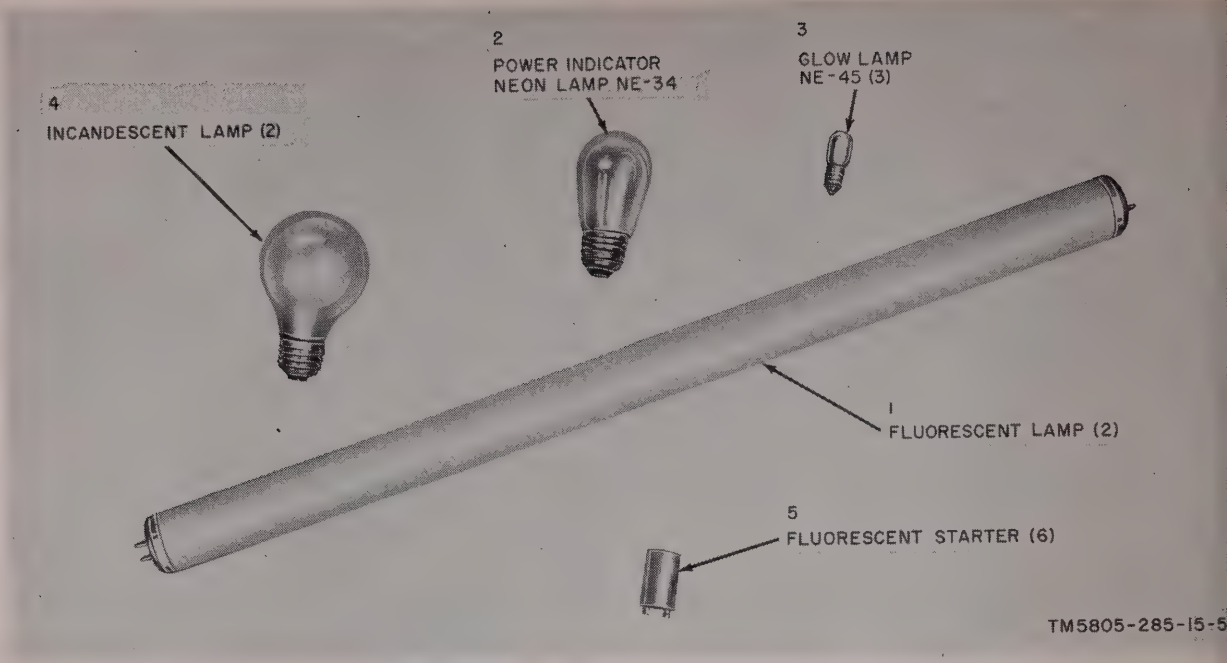


Figure 5. Shelter, Electrical Equipment, S–190/MGC–9, running spares.

Telephone Set TA–312/PT, to Intercommunication Station LS–147D/FI, and to the SPARE line jacks on the patch panel. The 26-pair receptacles are connected in parallel with the binding posts in binding post signal entrance box A ((4) below). The power and signal entrance box cover is equipped with folding side panels for weather protection and is secured with captive-screw-type fasteners.

(4) *Signal entrance boxes.* Three signal entrance boxes are located in the rear wall (fig. 15). Each signal entrance box is equipped with folding side panels for weather protection and is secured with captive-screw-type fasteners. The binding posts in binding post signal entrance boxes A and B may be used in place of the 26-pair receptacles in the power and signal entrance box and in connector signal entrance box C for signal connections to the AN/MGC–9.

(*a*) Binding post signal entrance box A contains 52 pairs of binding posts arranged in four rows (fig. 17). Pairs 1 through 26 of both SIGNAL 1 and SIGNAL 2 are connected in parallel with the pins of the 26-pair receptacles (SIGNAL 1 and SIGNAL 2) in the power and signal entrance box (fig. 16).

(*b*) Binding post signal entrance box B co tains 78 pairs of binding posts arrang in six rows (fig. 18). The connec signal entrance box contains three pair receptacles (fig. 19). Pairs through 26 of SIGNAL 3, SIGNAL and SIGNAL 5 in binding post sig entrance box B are connected in para with the pins of the 26-pair receptac (SIGNAL 3, SIGNAL 4, and SIGN 5) in the connector signal entrance b (fig. 19).

(5) *Power distribution panel.* The power d tribution panel (fig. 20) is mounted on rear wall (fig. 11). It contains a voltmet a current transformer (not shown), ammeter, a MAIN circuit breaker swit and six individual circuit breaker switch A glowlamp is associated with each po distribution circuit breaker switch lights when the associated switch is at ON.

(6) *Signal entrance panels.* The signal trance panels are mounted on the rear w (fig. 6) and provide access to the rear of binding posts and the 26-pair recepta in the signal entrance boxes ((4) abo They are equipped with removable co secured with captive-screw fasteners.

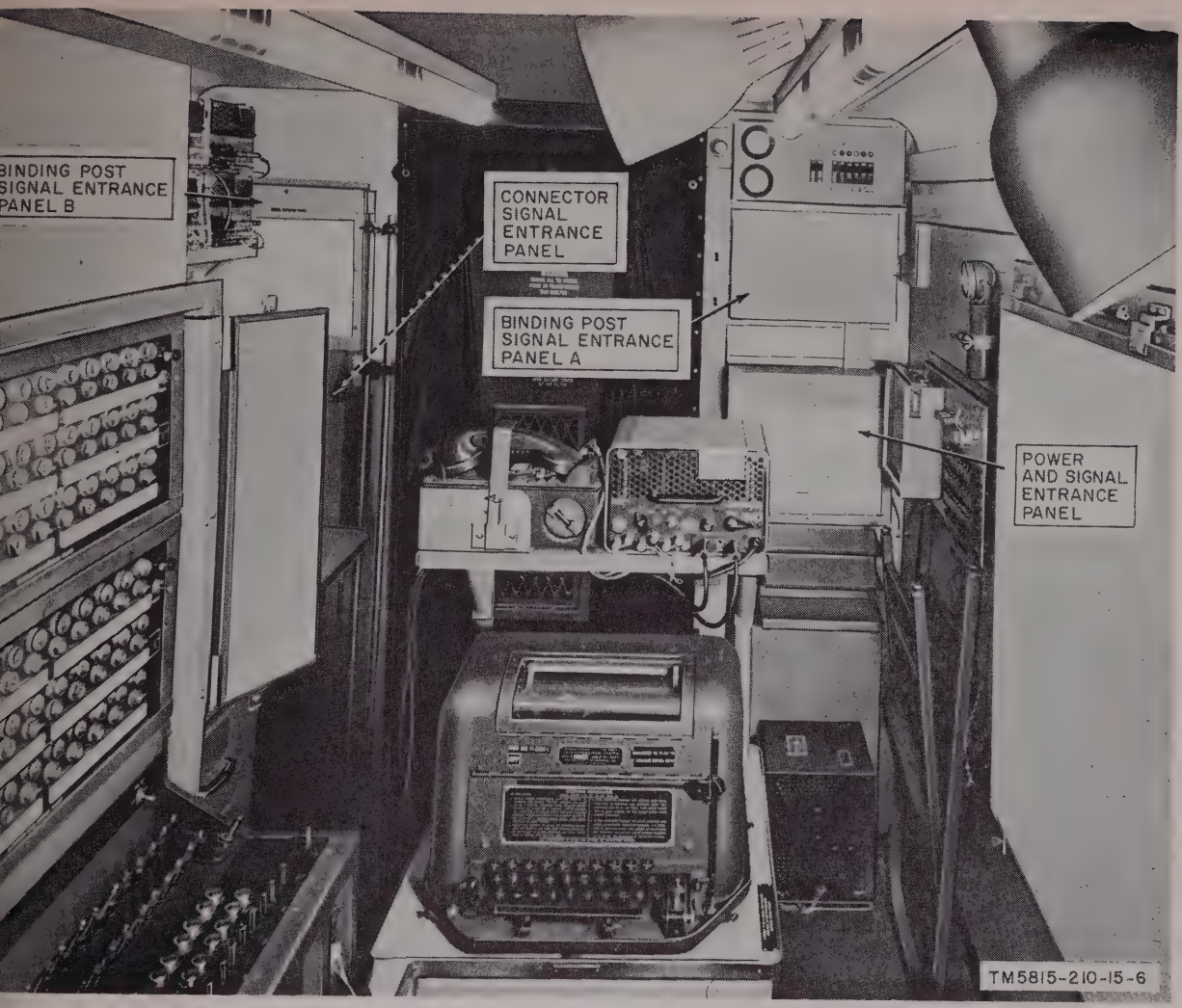


Figure 6. Central Office, Teletypewriter AN/MGC–9, interior rear view.

. Switchboard, Telephone, Manual SB–86/P (figs. and 14). Two SB–86/P's (TM 11–2134) are unted in the center aisle (positions 1 and 2). e TA–207/P and a traffic panel have been added each SB–86/P. The SB–86/P's are used in the /MGC–9 to switch vf teletypewriter or tele- one circuits.

. Terminal, Telegraph TH–5/TG (figs. 12 and 14). e TH–5/TG (TM 11–5805–246–10) is mounted at h operating position (fig. 14). The TH–5/ permits the associated TT–4A/TG (*f* below) to used over vf circuits.

. Converter, Telegraph-Telephone Signal TA–182/ Four TA–182/U's (TM 11–5805–247–10) are unted above the curb side tabletop (fig. 8). The -182/U's are used to provide vf signaling in the /MGC–9.

Telephone Set TA–312/PT. Three TA–312/ s (TM 11–2155) are provided (less carrying case). One TA–312/PT, arranged for local-battery operation, is mounted on the curb side tabletop (fig. 8) and is used for intraarea communication. A TA–312/PT is provided at each operating position (fig. 14) as the operator's telephone set.

f. Teletypewriter TT–4A/TG. One TT–4A/TG (TM 11–5815–206–12) is mounted at each operating position (fig. 14) and is used with a TH–5/TG (*c* above) for answering vf telegraph calls.

g. Terminal Box TA–125/GT. The TA–125/GT (TM 11–2138) is a 24-pair terminal box used to interconnect circuits during testing, patching, and monitoring procedures. The TA–125/GT is stored on the curb side wall (fig. 8).

h. Generator Set Gasoline Engine, Trailer Mounted PU–294/G. The PU–294/G (TM 11–5805–204–15) consists of two Gasoline Engine Generator Sets PU–286/G (TM 11–940A) mounted on a

standard M–105A1 cargo trailer. The PU–294/G supplies the ac power for the AN/MGC–9 (par. 27) when either PU–286/G is operating.

10. Description of Shelter Components

a. Distribution Box J–1077A/U. The J–1077A/U is mounted beneath the tabletop on the front wall (fig. 10). It is equipped with 26 pairs of binding posts connected in paralled with two 26-pair receptacles. The J–1077A/U can be used to connect field wires into a 26-pair cable.

b. Electric Heaters (fig. 21). The electric heaters are secured in their mounting bases on the floor of the shelter (figs. 9 and 10). Each heater contains a 1.5-kilowatt heating element and a fan for air circulation. The fan operates when the heater is turned on, but it may also be operated independently. Horizontal louvers on the front of each heater are adjustable to deflect the airstream (fig. 21). The operating controls are located on top of each heater; the power cord extends through a hole in the right side of the back cover plate.

c. Intercommunication Station LS–147D/FI (fig. 22). The LS–147D/FI is mounted on the curb side wall (fig. 8). It provides two-way, nonprivate communication in a system that consists of other LS–147/FI's or equivalent equipments.

d. Exhaust Blowers. Two exhaust blowers mounted on the front wall (fig. 10) are equipped with removable covers that muffle the sound when the blowers are operating. Exhaust vents to the outside of the shelter are provided (par. 9*a*).

e. Clock. An 8-day, luminous-dial, 24-hour clock is mounted between the upper TA–207/P's (fig. 14). A knob on the left-hand side of the clock is used for winding and setting the clock.

f. Patch Panel (fig. 23). The patch panel is mounted on the curb side wall (fig. 8). It consists of two jack strips of nine jacks and two binding posts each.

g. TA–182/U Switchbox (fig. 24). The TA–182/U switchbox is mounted beside the TA–182/U's on a shelf on the curb side wall (fig. 8). It is equipped with four ON-OFF switches, each with an associated glowlamp and power receptable. The switchbox controls ac power to the four TA–182/U's.

h. TT–4A/TG and TH–5/TG Switch Panel (fig. 25). The TT–4A/TG and TH–5/TG switch panel is mounted between the two SB–86/P's (fig. 14) and consists of two ON-OFF switches, each with an associated glowlamp and four ac power receptacl (fig. 25). The switch panel controls ac power to th TT–4A/TG's and the TH–5/TG's.

i. Vacuum Cleaner. The vacuum cleaner whic is used for cleaning the equipment, is stored (le wand) in storage drawer No. 1. The vacuum clean wand is clip-mounted beneath the curb side tabletc (fig. 8).

j. Cables and Cords.

(1) *Power cable assembly and reel* (fig. 4). Th power cable assembly is wound on a re and secured by a tiedown bar to the flo at the front of the shelter (fig. 12). It is 100-foot, three-conductor cable with watertight power connector on each end.

(2) *Power cable stubs* (fig. 2). The power cab stubs are stored in a drawer. They a 15-foot, three-conductor cables. One h a watertight power connector on one en and red, white, and black prepared lea on the other end; the other, power connec ors on both ends. The stub with prepar leads is used for connecting the shelter the power source; the stub with pow connectors on both ends is used to obta power from an adjacent shelter (par. 2

(3) *Cable Assembly, Telephone CX–4566/ (250 ft)* (fig. 4). The CX–4566/G consis of a 250-foot, 26-pair cable, equipped wi a 26-pair connector on each end, which wound on Reel RC–435/U. The CX 4566/G is secured to the floor of t shelter with the power cable assemb and reel (fig. 12).

(4) *Patch cords* (fig. 3). The four 5-in patch cords are stored in a drawer. Th are two-conductor cords equipped with telephone plug at each end.

(5) *Telephone cords* (fig. 2). The telepho cords are two-conductor cords with telephone plug on one end and prepar leads on the other. The telephone cor are installed for use with the TA–312/ and the LS–147D/FI.

(6) *Teletypewriter connecting cords* (fig. 2). T teletypewriter cords are flexible, tw conductor cords with prepared leads on o end and telephone plugs on the other. T teletypewriter cords are installed for use connecting the TT–4A/TG's.

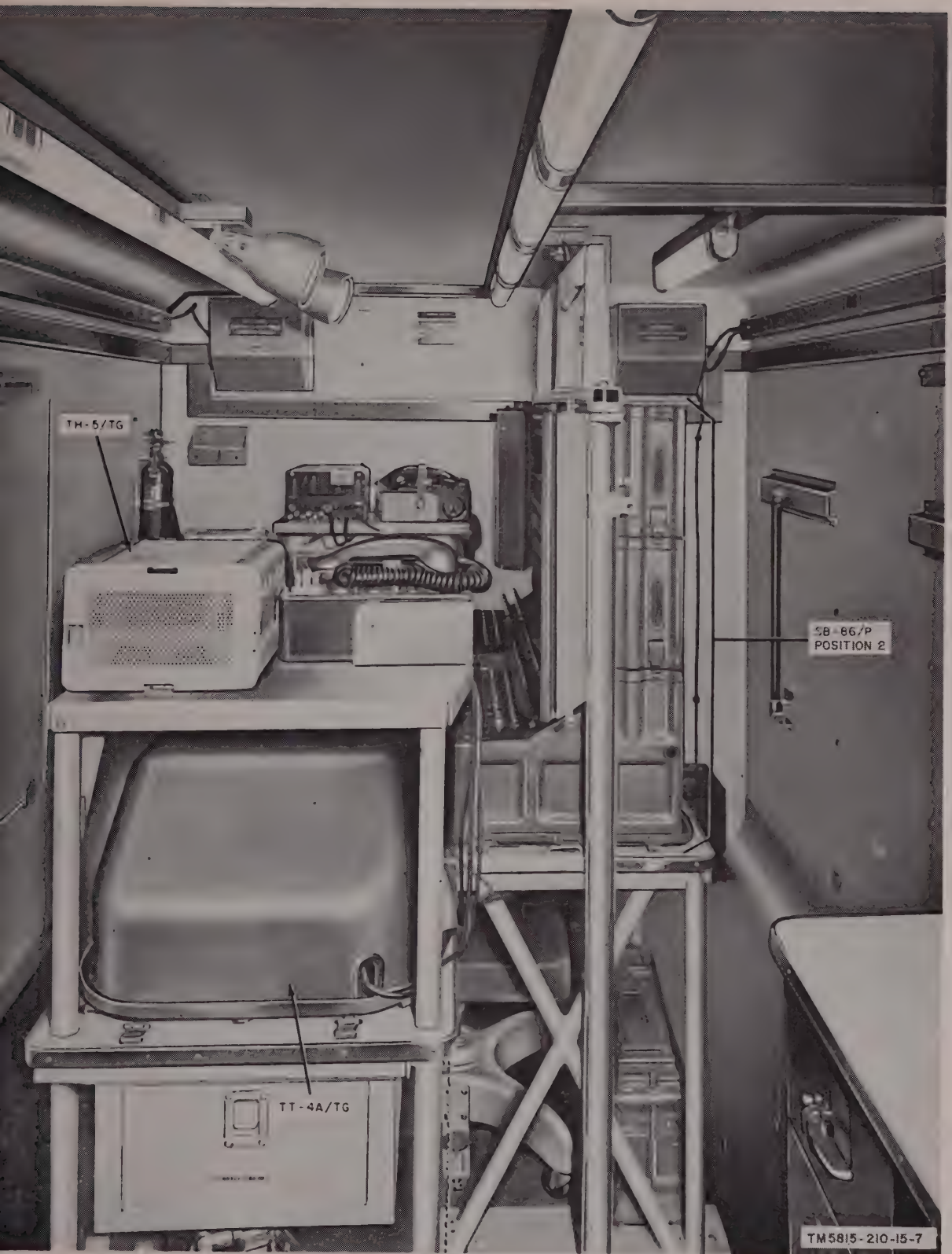


Figure 7. Central Office, Teletypewriter AN/MGC–9, interior front view.

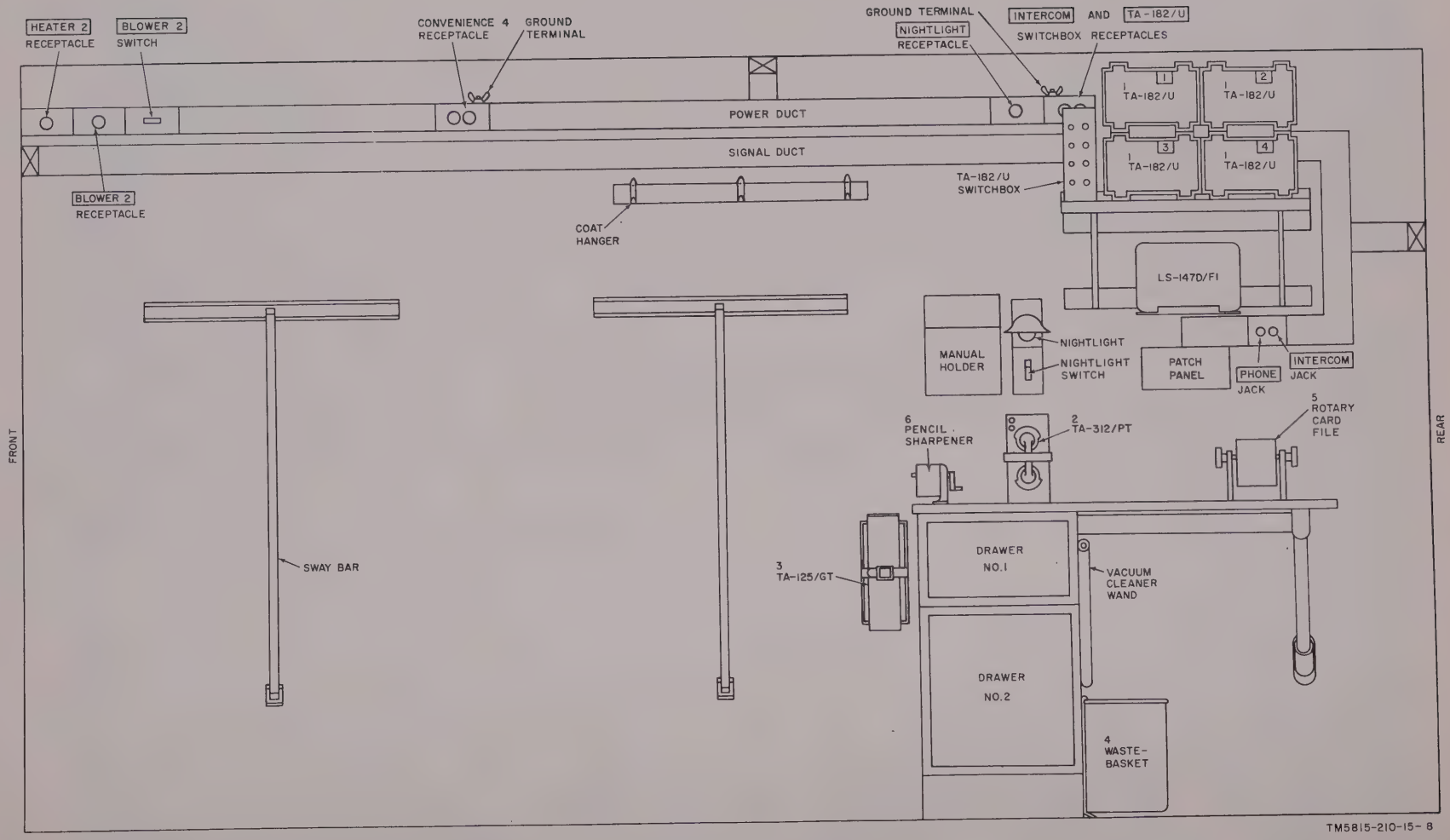


Figure 8. Central Office, Teletypewriter AN/MGC–9, curbside wall.

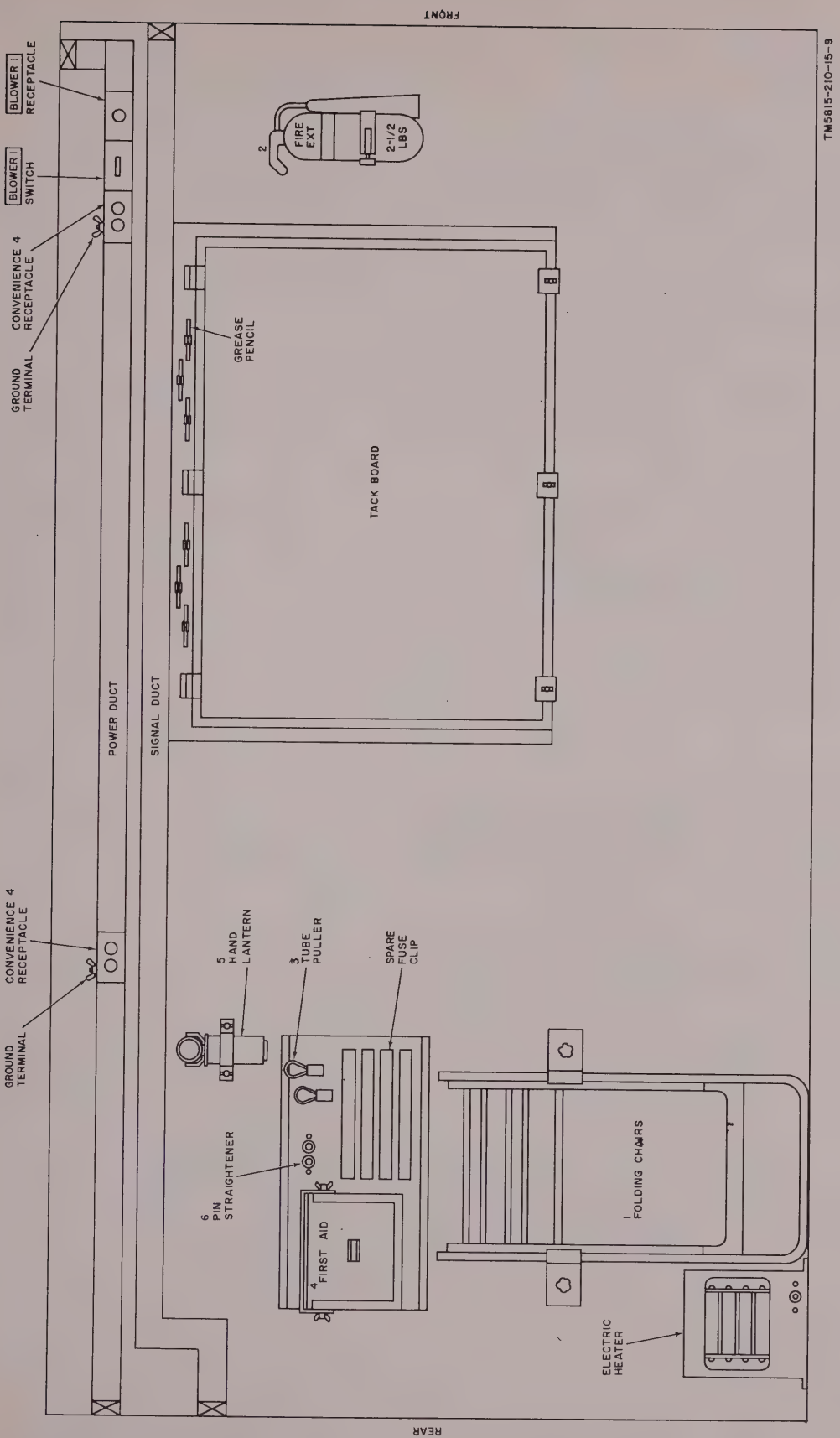


Figure 9. Central Office, Teletypewriter AN/MGC–9, roadside wall.

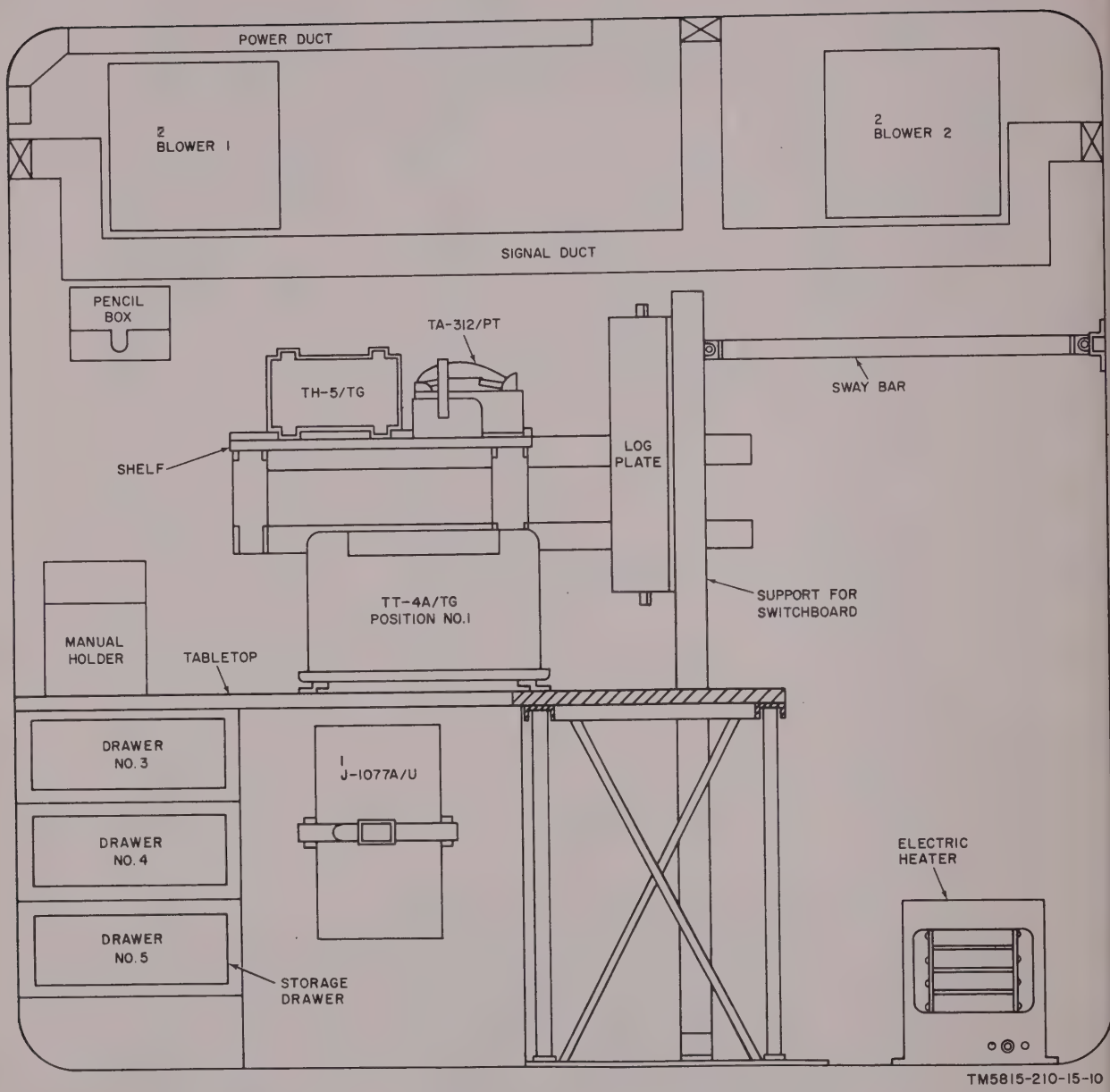


Figure 10. Central Office, Teletypewriter AN/MGC–9, front wall.

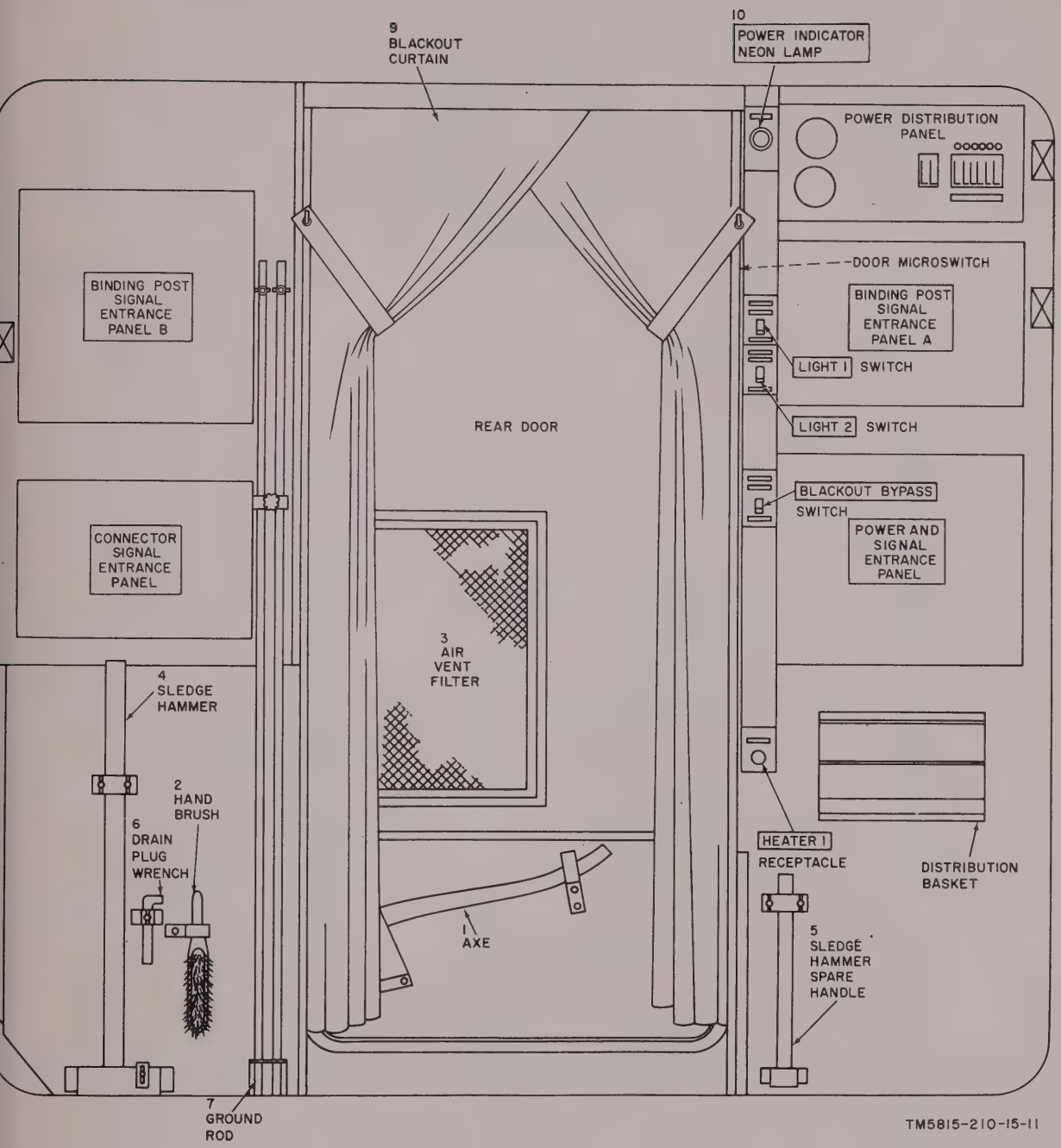


Figure 11. Central Office, Teletypewriter AN/MGC–9, rear wall.

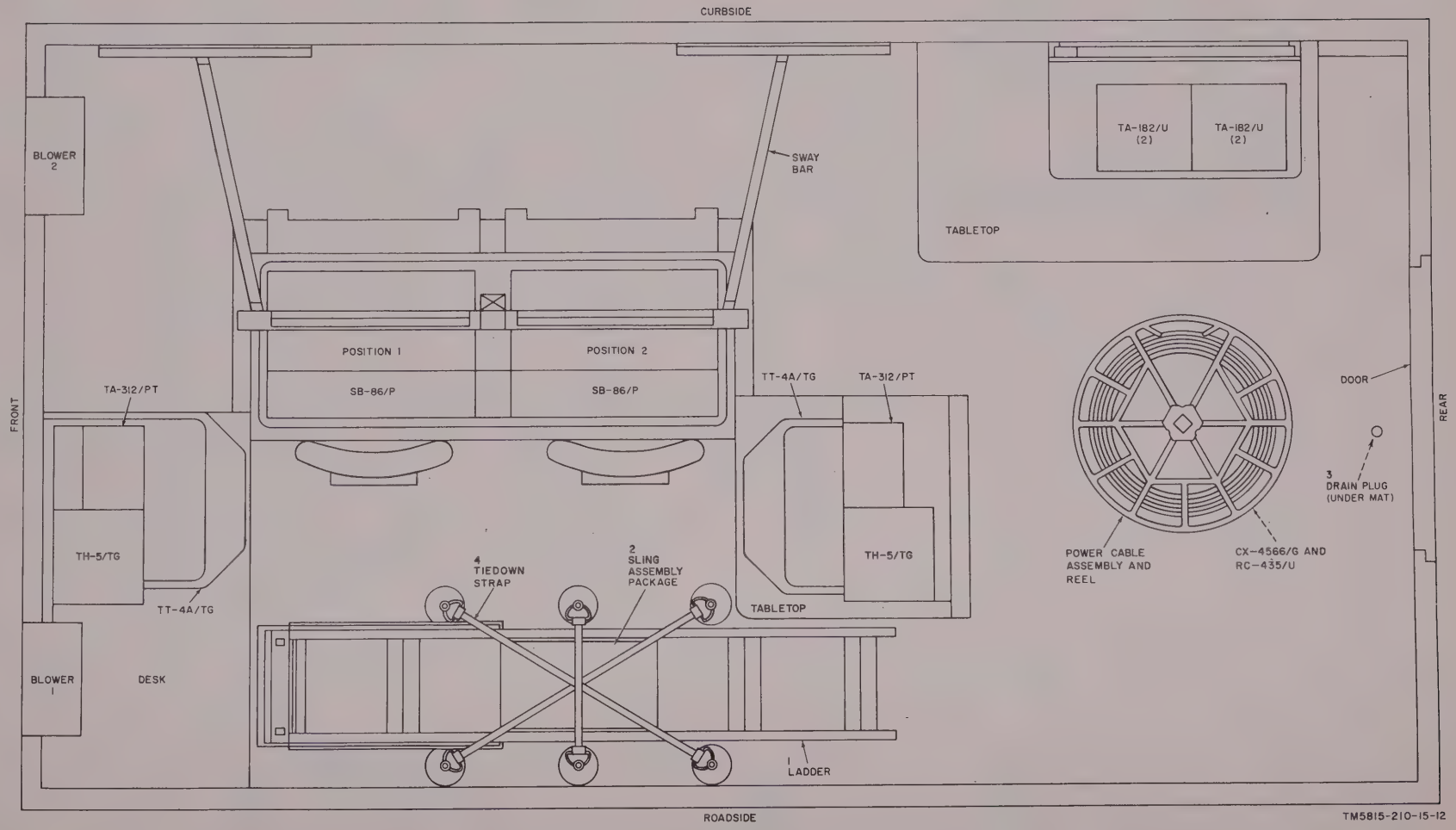


Figure 12. Central Office, Teletypewriter AN/MGC-9, floor plan.

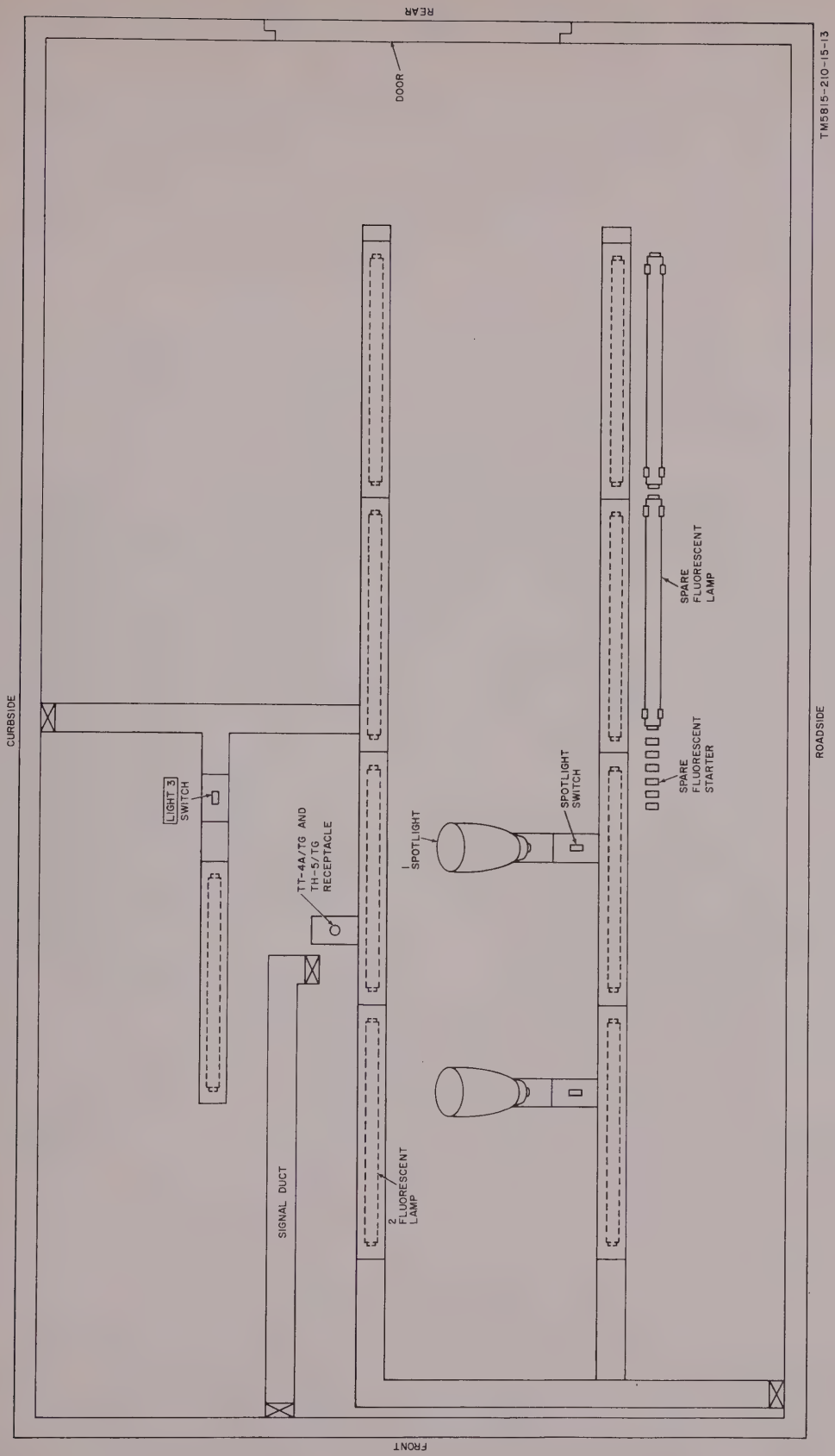


Figure 13. Central Office, Teletypewriter AN/MGC–9, ceiling plan.

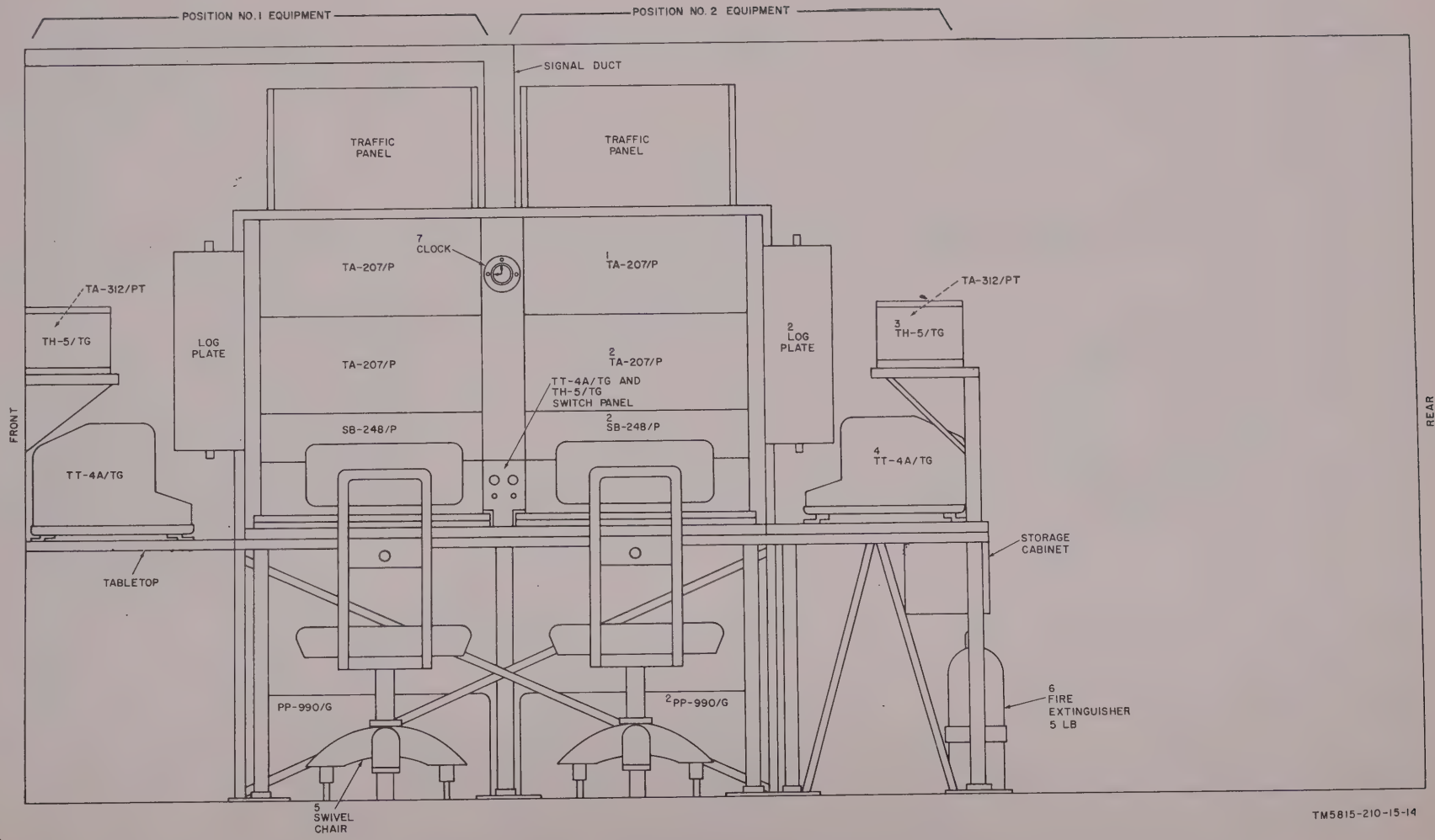


Figure 14. Central Office, Teletypewriter AN/MGC–9, operating positions.

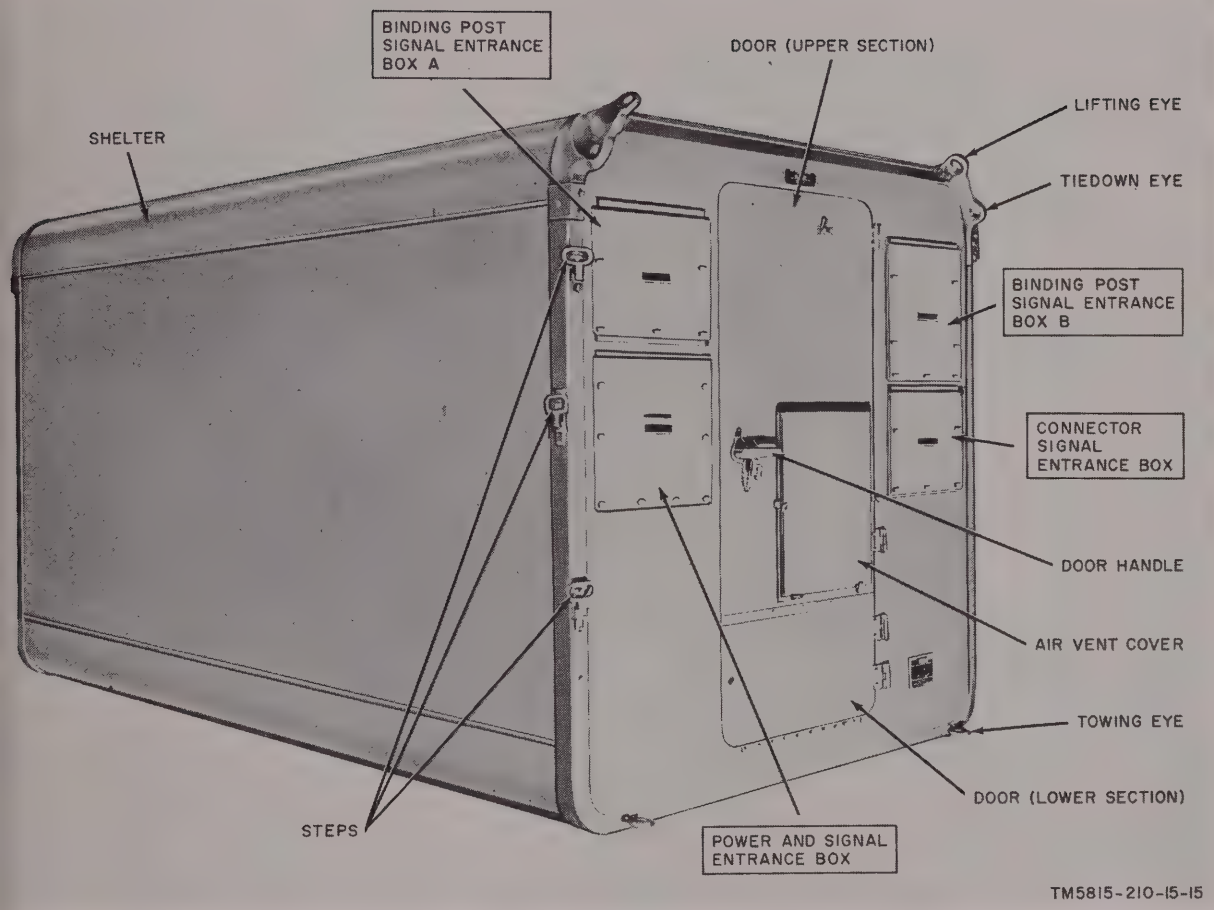


Figure 15. Shelter, Electrical Equipment S–190/MGC–9.

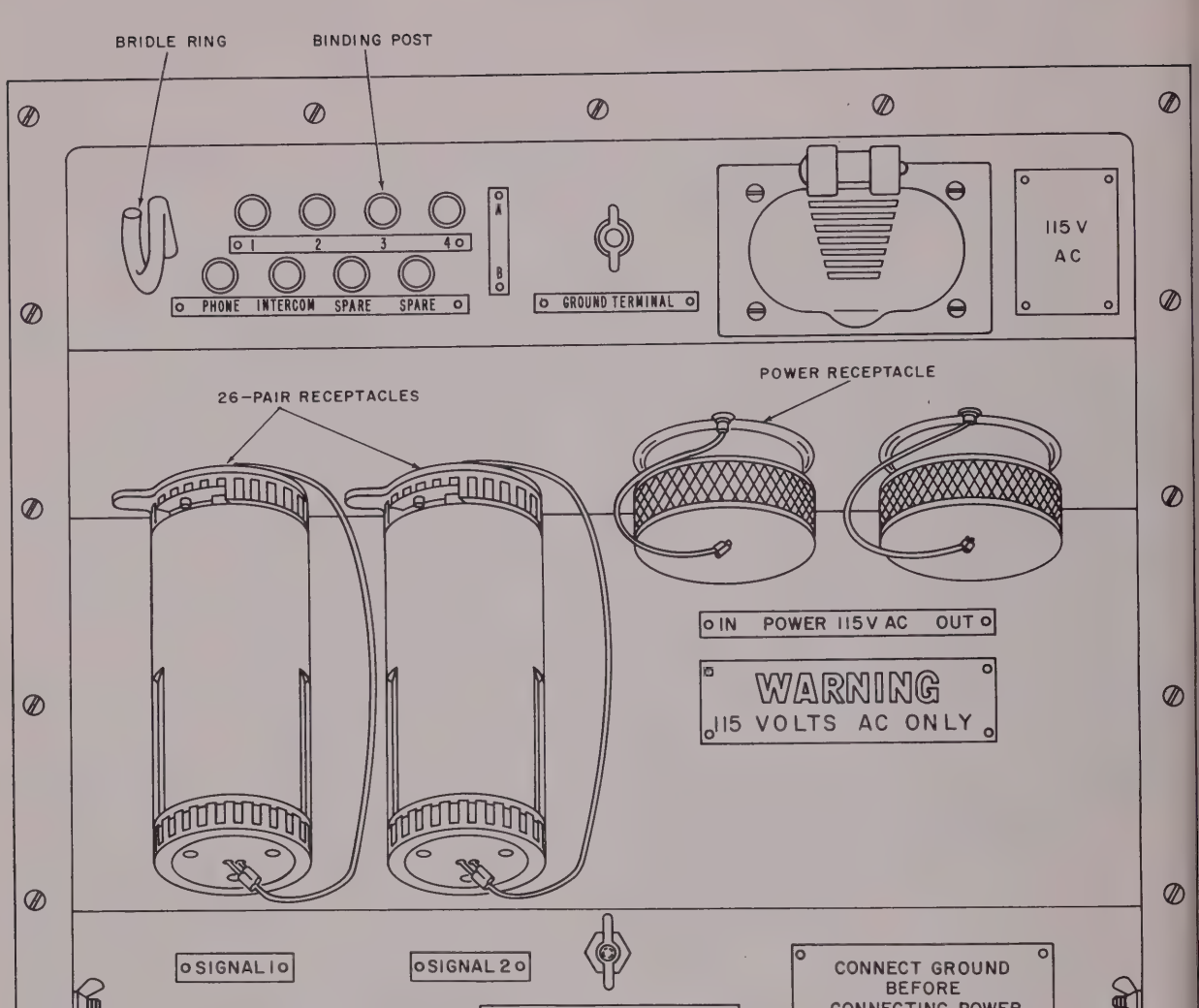


Figure 16. Power and signal entrance box, cover removed.

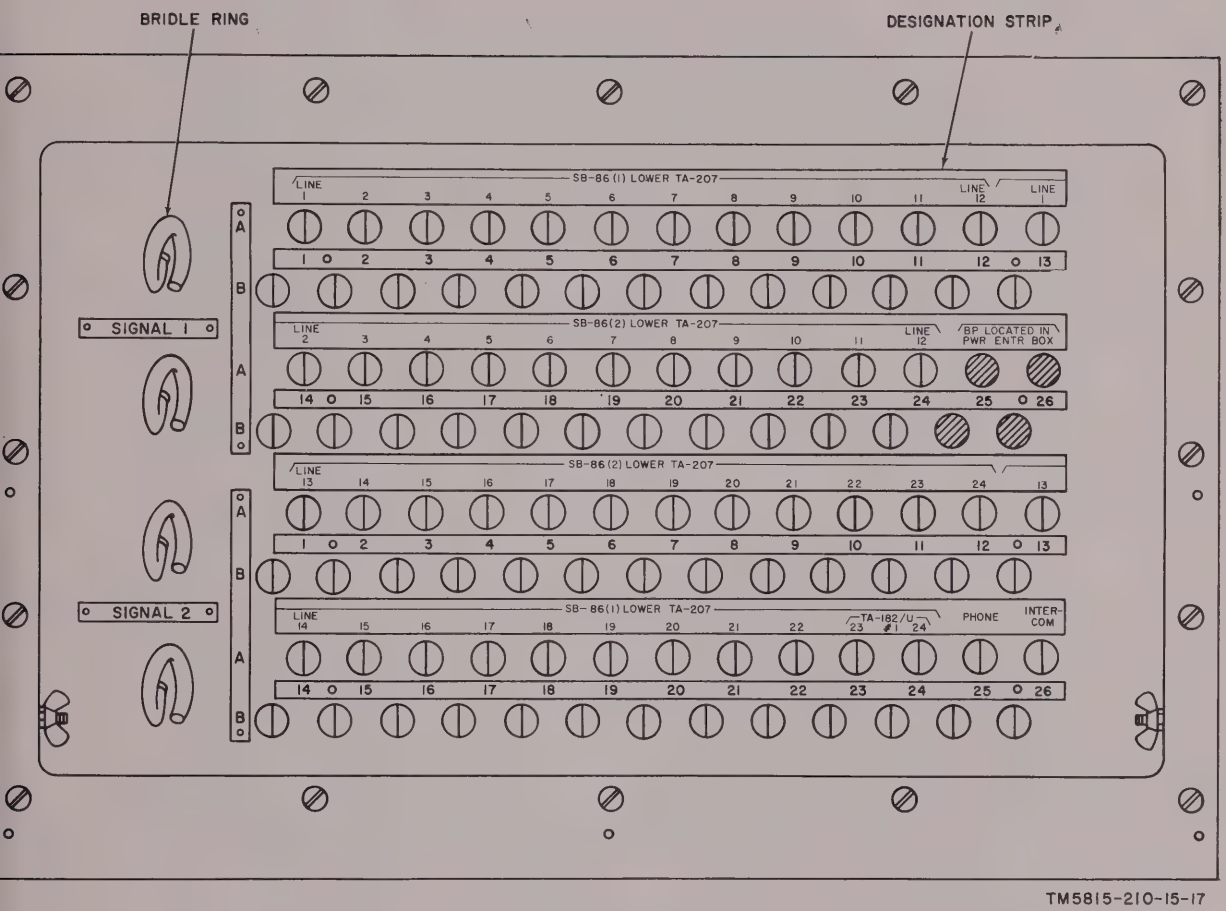


Figure 17. Binding post signal entrance box A, cover removed.

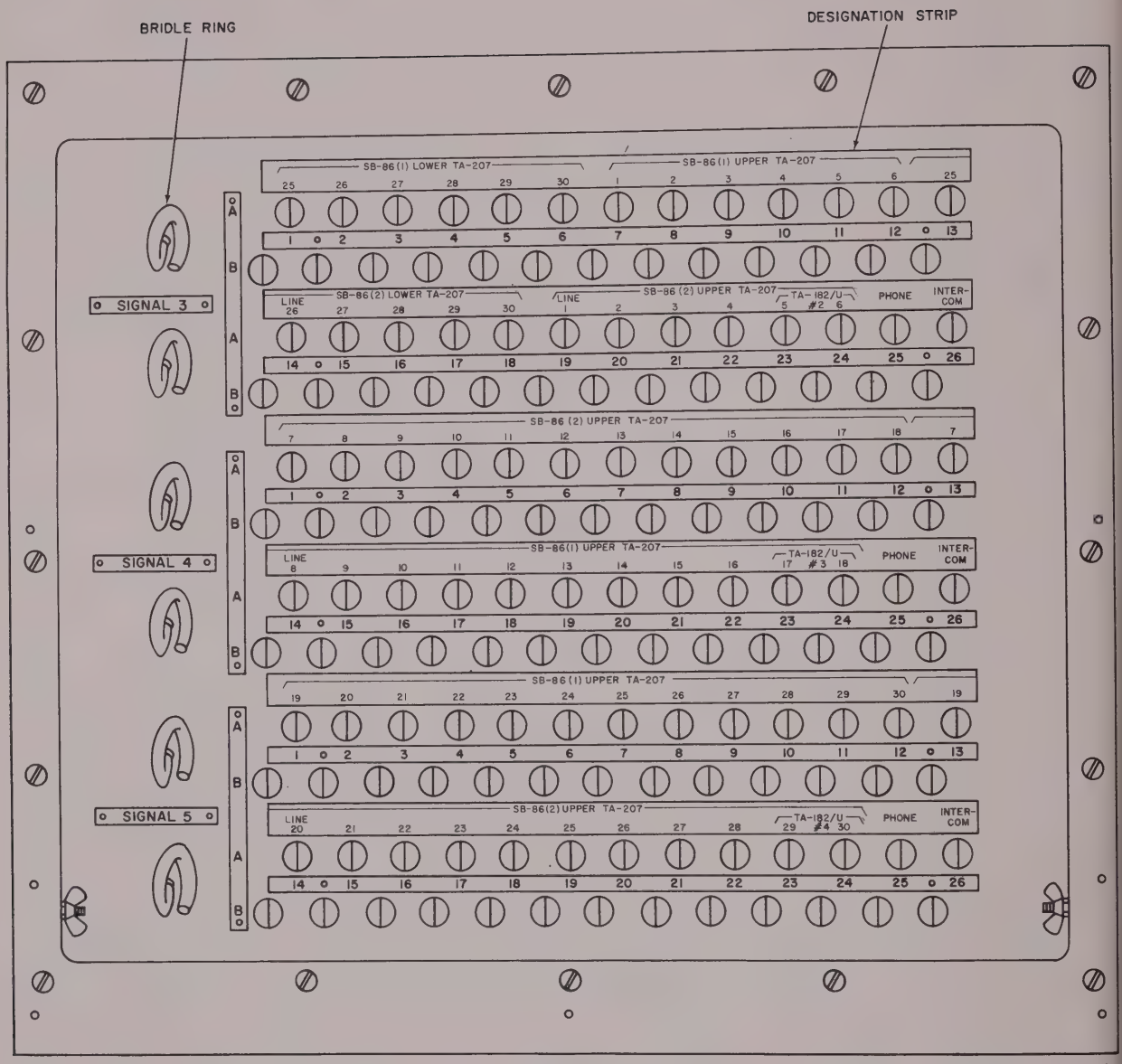


Figure 18. Binding post signal entrance box B, cover removed.

Figure 19. Connector signal entrance box, cover removed.

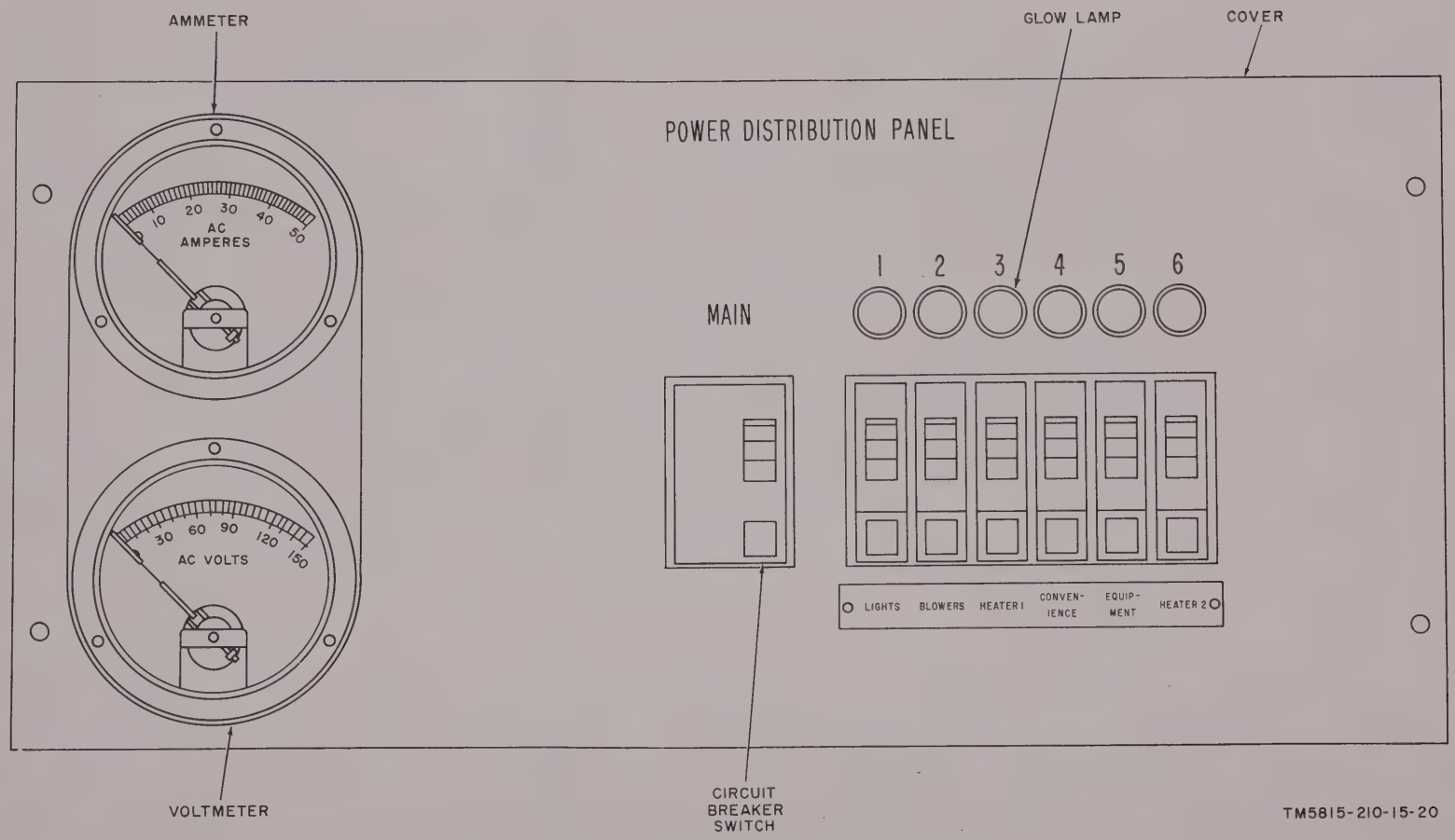


Figure 20. Power distribution panel, controls and indicators.

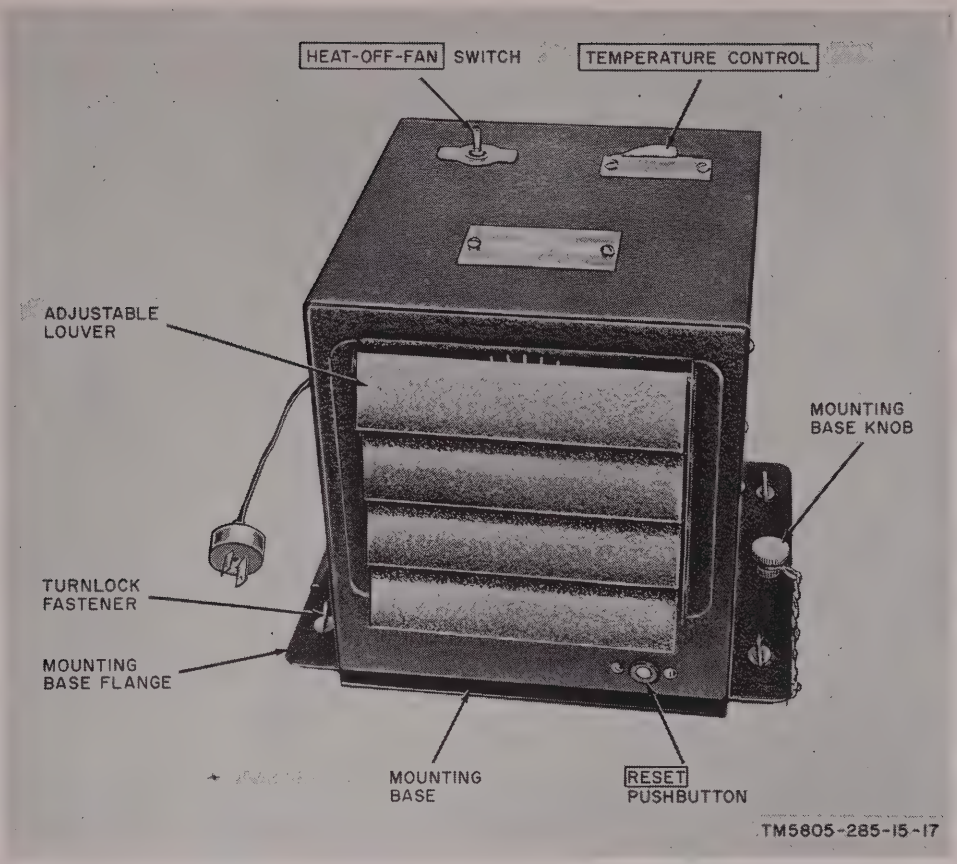


Figure 21. Electric heater, controls and mounting base.

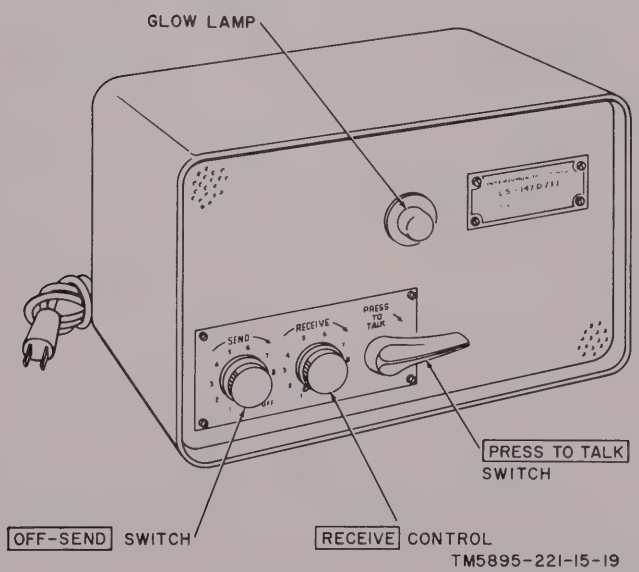


Figure 22. Intercommunication Station LS–147D/FI, controls and indicator.

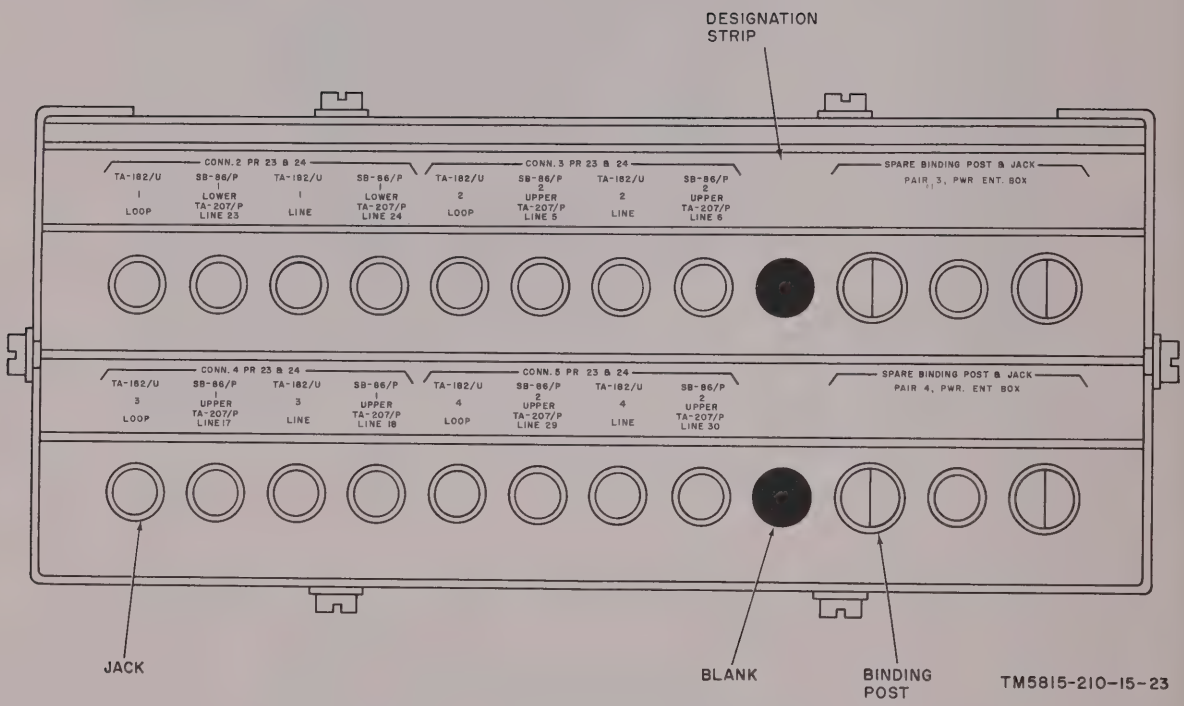

DESIGNATION STRIP
CONN. 2 PR 23 & 24
TA-182/U 1 LOOP
SB-86/P 1 LOWER TA-207/P LINE 23
TA-182/U 1 LINE
SB-86/P 1 LOWER TA-207/P LINE 24
CONN. 3 PR 23 & 24
TA-182/U 2 LOOP
SB-86/P 2 UPPER TA-207/P LINE 5
TA-182/U 2 LINE
SB-86/P 2 UPPER TA-207/P LINE 6
SPARE BINDING POST & JACK
PAIR 3, PWR ENT. BOX
CONN. 4 PR 23 & 24
TA-182/U 3 LOOP
SB-86/P 1 UPPER TA-207/P LINE 17
TA-182/U 3 LINE
SB-86/P 1 UPPER TA-207/P LINE 18
CONN. 5 PR 23 & 24
TA-182/U 4 LOOP
SB-86/P 2 UPPER TA-207/P LINE 29
TA-182/U 4 LINE
SB-86/P 2 UPPER TA-207/P LINE 30
SPARE BINDING POST & JACK
PAIR 4, PWR. ENT BOX
JACK
BLANK
BINDING POST
TM5815-210-15-23

Figure 23. Patch panel, jack strip designations.

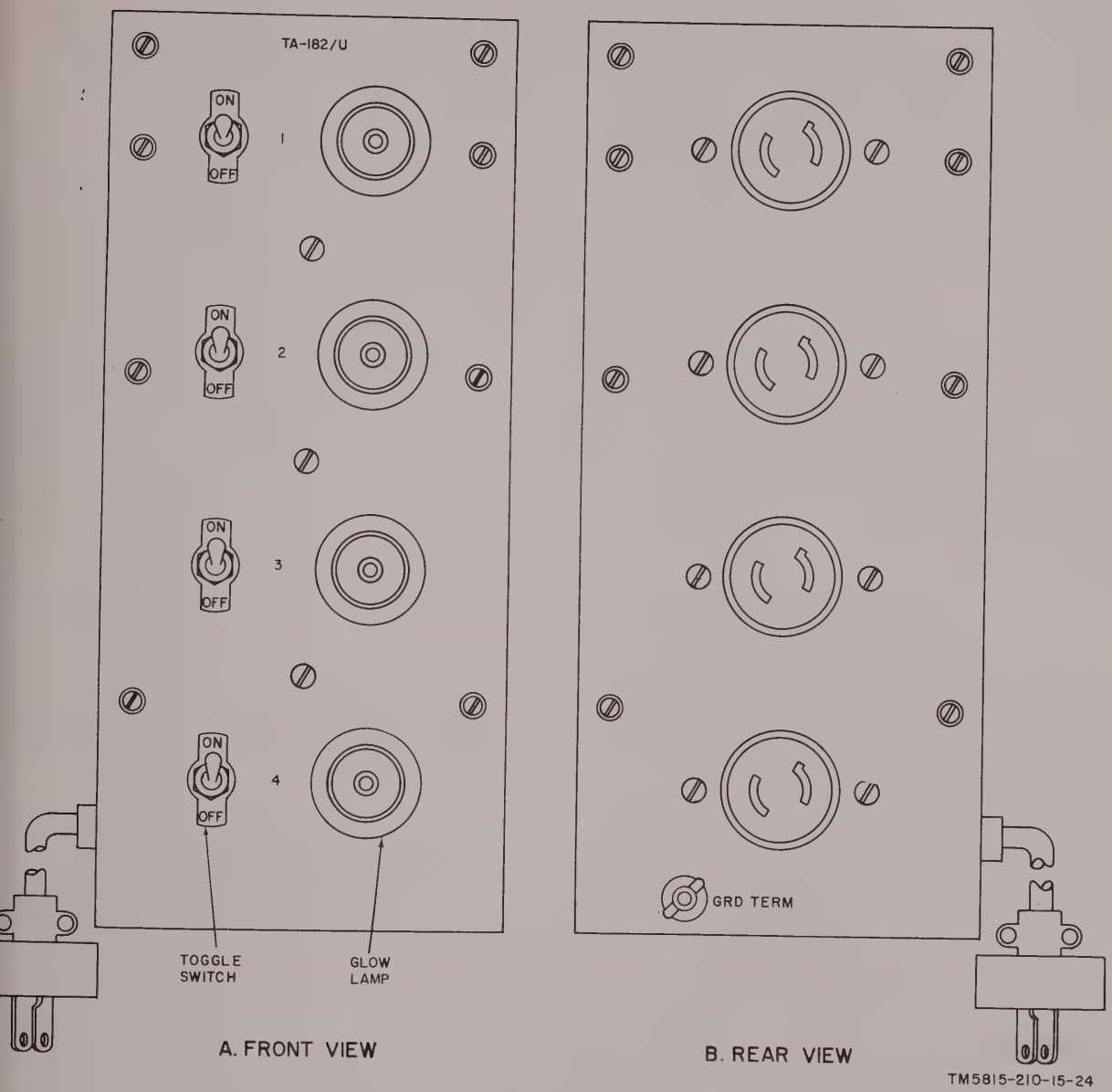


Figure 24. TA–182/U switchbox, controls and indicators.

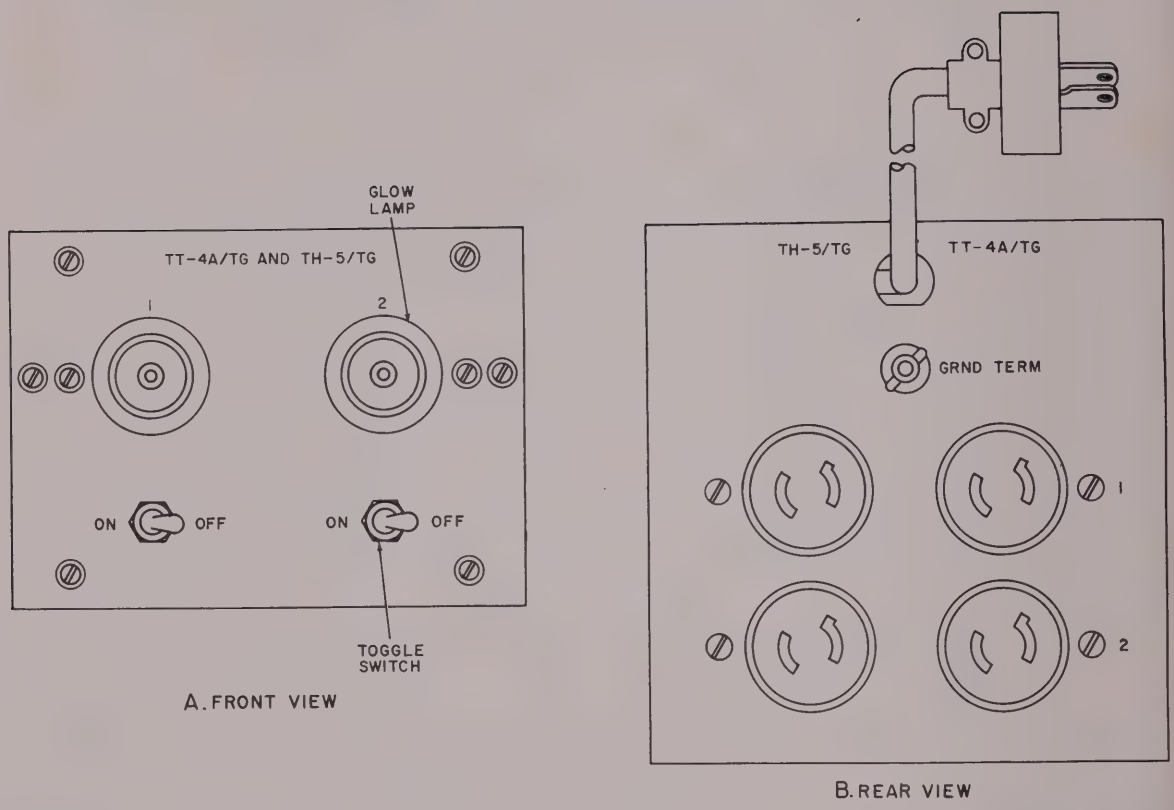


Figure 25. TT–4A/TG AND TH–5/TG switch panel, controls and indicators.

CHAPTER 2
INSTALLATION

Section I. INSTALLATION OF EQUIPMENT

. General

When an AN/MGC–9 is received, uncrate and eck it (par. 12), then perform the tests in para-aphs 22 through 29. When an S–290/MGC–9 is eived, perform the procedures in *a* through *g* ow.

a. Uncrate and check the equipment (par. 12).
b. Install the SB–86/P's (par. 14*a*).
c. Install the TT–4A/TG's (par. 14*b*).
d. Install the TA–182/U's (par. 14*c*).
e. Install the TH–5/TG's (par. 14*d*).
f. Install the TA–312/PT's (par. 14*e*).
g. Install the TA–125/GT (par. 14*f*).

Note. Grounding and power connections (pars. 26 and 27) st be completed before the lighting and convenience eptacles in the S–190/MGC–9 can be used.

. Uncrating and Checking

a. Uncrating the Shelter (fig. 26).

(1) First remove the front and rear panels and then the top and side panels by removing the bolts.
(2) Remove the four lag screws that secure the base of the crate to the shelter.
(3) Remove the sling assembly from its package on the floor of the shelter (fig. 12).
(4) Use a device capable of lifting 5,000 pounds to remove the shelter from the base of the crate. Attach the sling assembly cables to the lifting eyes (fig. 15) on the top corners of the shelter (par. 25) and raise the shelter off the base of the crate.
(5) Remove the base of the crate and lower the shelter.

b. Checking Contents. Check the contents of the N/MGC–9 or the S–190/MGC–9 against the cking list. If the packing list is not available, the table of components (pars. 5 and 6 for the N/MGC–9 or par. 6 for the S–190/MGC–9) to eck the equipment that *probably* was packed.

13. Test Equipment and Tools Required

The following items are required to install and connect the equipment in the AN/MGC–9:

a. Multimeter AN/URM–105 (TM 11–6625–203–12).
b. Spring-release hook (mounted on the tool panel).
c. Tool roll kit (par. 6).

14. Installation of Major Components

a. Installation of SB–86/P's. Install the SB–86/P's with additional TA–207/U's at POSITION NO. 1 and POSITION NO. 2 (fig. 14) as described in (1) through (10) below.

(1) Remove the components from their carrying cases (TM 11–2134).
(2) Remove the wingnuts located beneath the tabletop and remove the retaining bars.
(3) Remove the top framework located beneath the traffic panel assemblies (fig. 14).
(4) Position one SB–248/P at POSITION NO. 1 on the tabletop; place the retaining bars (two in front, two in back, and one on each side) over the lashing hooks on the SB–248/P base and through the holes in the tabletop.
(5) Replace and tighten the wingnuts.
(6) Place two TA–207/P's on top of the SB–248/P and secure them in place (TM 11–2134).
(7) Repeat steps (4) through (6) above for the POSITION NO. 2.
(8) Replace the top framework bar over the TA–207/P's and secure it in place.
(9) Fasten a log plate to the bracket beside each SB–86/P with the two bolts provided.
(10) Place a Power Supply PP–990/G beneath each operating position; insert the two lock rods from the carrying case and secure the PP–990/G in place.

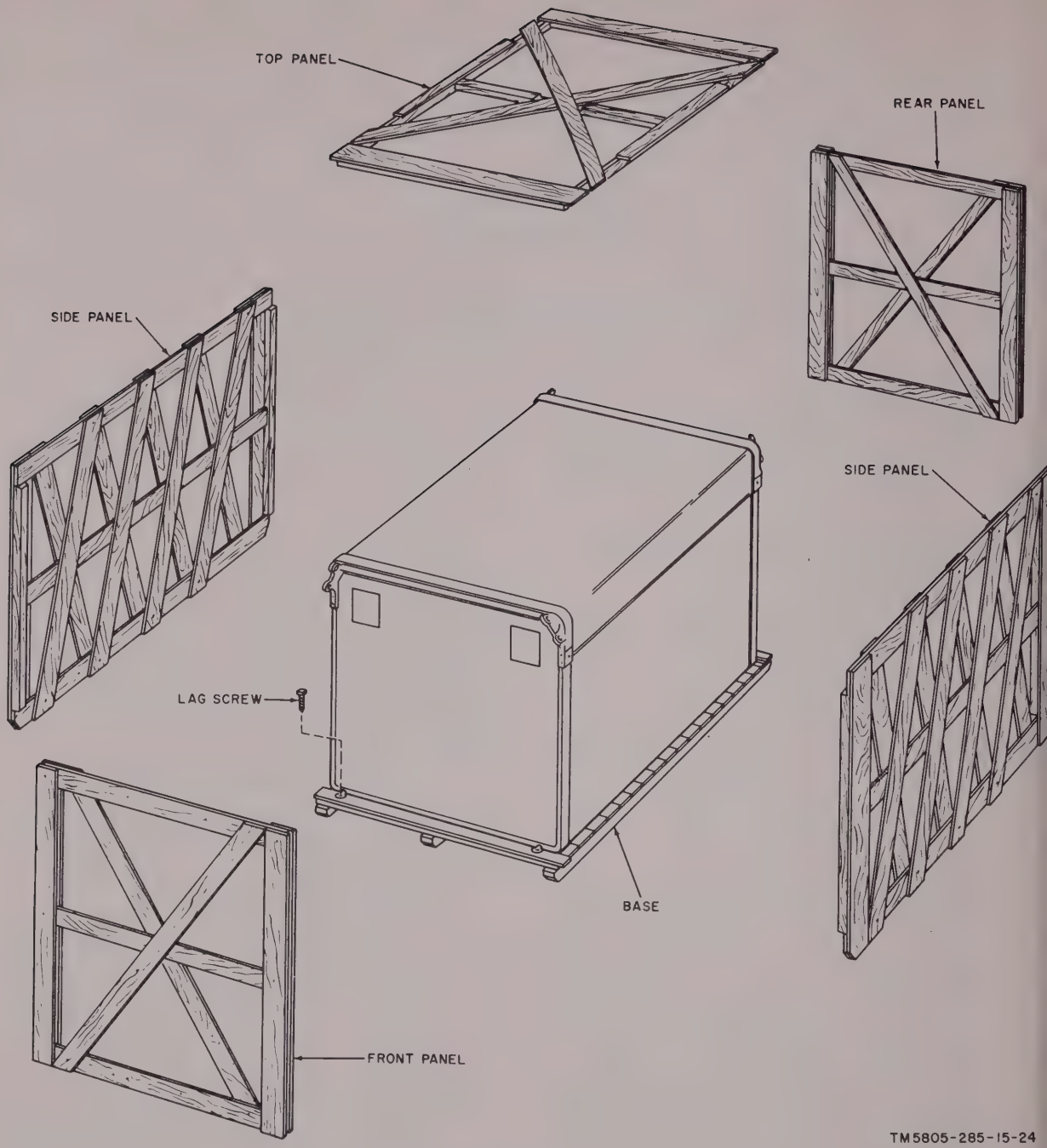


Figure 26. Typical crating diagram.

Caution: **When transporting the shelter, secure the two sway bars attached to the curb side wall (fig. 8) to the SB–86/P supporting framework.**

b. Installation of TT–4A/TG.

(1) Remove and store the immersion proof cover (TM 11–5815–206–12).

(2) Remove the four wingnuts under th tabletop (fig. 14) and remove the tw holddown bars.

(3) Position the TT–4A/TG on the tablet at POSITION NO. 1; place the holddow bars over the lashing hooks on the sid of the TT–4A/TG base and through th holes in the tabletop.

(4) Replace and tighten the four wingnuts.
(5) Fasten the web strap from each retaining bar over the top of the TT–4A/TG dust cover.
(6) Repeat procedures (1) through (5) above for the TT–4A/TG at POSITION NO. 2.

c. Installation of TA–182. The TA–182/U's are stalled in the shelter mountings (fig. 8) with their vers and cases removed.

(1) Release the snap catches on the cases and open the cover assemblies (TM 11–5805–247–10).
(2) Remove the spare fuses from the covers and store them in the spare fuze clips on the roadside wall (fig. 9).
(3) Remove the TA–182/U's from their cases (TM 11–5805–247–20) and store the cases.
(4) Lift up the equipment rack designation plate (fig. 8), place each TA–182/U chassis in its shelter mounting, and fasten the three quick-release screws on each TA–182/U.

d. Installation of TH–5/TG. The TH–5/TG's e installed on the shelf at POSITION NO. 1 and OSITION NO. 2 (fig. 14). To install the TH–5/G's, follow the procedure outlined in *c* (1) through) above.

e. Installation of TA–312/PT. Install one TA–2/PT above the curb side tabletop (fig. 8) and one each operating position (fig. 14), as follows:

(1) Loosen the wingnut on the side of the mounting bracket (fig. 27).
(2) Pull out and rotate the clamping arm upward and tighten the wingnut to secure it in place.
(3) Use a screwdriver to remove the flathead screw and the holding plate (inside the mounting bracket).
(4) Insert the holding plate into the buzzer recess on the side of the TA–312/PT.
(5) Place the TA–312/PT into the mounting bracket and replace the flathead screw.
(6) Install batteries BA–30 in the TA–312/PT's and arrange the LB-CB-CBS switch as required (TM 11–2155).

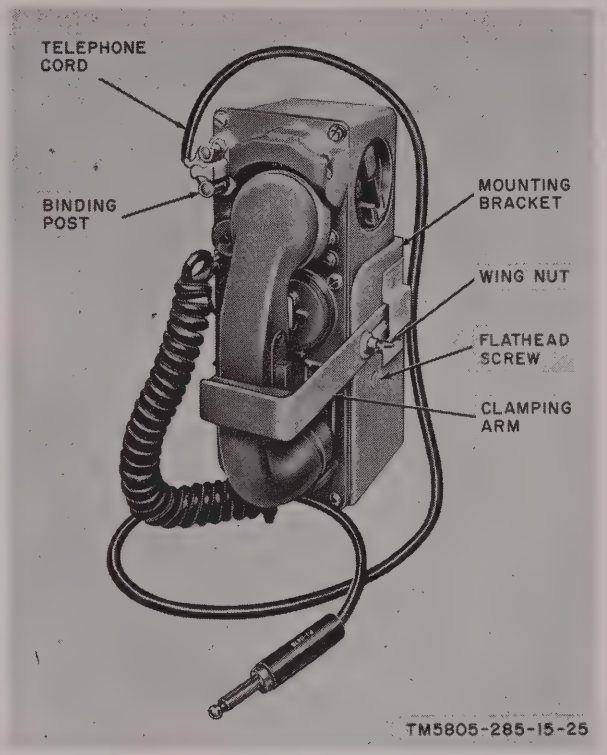


Figure 27. Telephone Set TA–312/PT, installed in mounting bracket.

f. Installation of TA–125/GT. Place the TA–125/GT in its mounting bracket on the curb side wall (fig. 8). Secure it in place with the web straps provided.

Section II. EQUIPMENT CONNECTIONS

5. General

The signal duct contains the wiring required to terconnect the components of the AN/MGC–9. l wiring is appropriately tagged and prepared for nnection. The signal schematic-wiring diagram g. 39) supplements the information in paragraphs through 21 for connecting each component. The wer duct contains power receptacles appropiately marked for each piece of equipment that quires ac power. The test equipment and tools quired for making equipment connections are ted in paragraph 13.

16. Connection of SB–86/P

(fig. 39)

a. Install and connect the batteries in each SB–86/P (TM 11–2134).

b. Connect the battery and ground wiring in each TA–207/P and in each SB–248/P as follows:

Wire color	Terminal
Wht	24V–
Blk	24V+
Grn	GRD

c. The cables from the signal duct are designated POSITION NO. 1 and POSITION NO. 2. Their length determines whether they are connected to the upper or lower TA–207/P. Make the connections listed in (1) through (4) below.

(1) *POSITION NO. 1, lower TA–207/P.*

Wire designation (pair)	Wire colors	Connect to binding posts
1	Wht-blu, wht-orn-blu	1
2	Wht-brn-blu, wht-gy-blu	2
3	Wht-grn, wht-orn-grn	3
4	Wht-grn-blk, wht-yel-grn	4
5	Wht-brn-grn, wht-gy-grn	5
6	Wht-blu-blk, wht-yel-blu	6
7	Wht-brn, wht-grn	7
8	Wht-blk, wht-orn	8
9	Wht-brn-gy, wht-brn-vio	9
10	Wht-yel, wht-blu-grn	10
11	Wht-red, wht-gy	11
12	Wht-blk-red, wht-orn-red	12
13	Wht-brn-red, wht-grn-red	13
14	Wht-blu-red, wht-yel-red	14
15	Wht-red-red, wht-gy-red	15
16	Wht-blk-orn, wht-orn-orn	16
17	Wht-brn-orn, wht-grn-orn	17
18	Wht-blu-orn, wht-yel-orn	18
19	Wht-red-orn, wht-gy-orn	19
20	Wht-blk-brn, wht-orn-brn	20
21	Wht-brn-brn, wht-grn-brn	21
22	Wht-blu-brn, wht-yel-brn	22
23	Wht-red-brn, wht-gy-brn	23
24	Wht-blk-blu, wht-orn-blu	24
25	Wht-blu, wht-orn-blu	25
26	Wht-brn-blu, wht-gy-blu	26
27	Wht-grn, wht-orn-grn	27
28	Wht-grn-blk, wht-yel-grn	28
29	Wht-brn-grn, wht-gy-grn	29
30	Wht-blu-blk, wht-yel-blu	30

(2) *POSITION NO. 1, upper TA–207/P.*

Wire designation (pair)	Wire colors	Connect to binding posts
1	Wht-brn, wht-grn	1
2	Wht-blk, wht-orn	2
3	Wht-brn-gy, wht-brn-vio	3
4	Wht-yel, wht-blu-grn	4
5	Wht-red, wht-gy	5
6	Wht-blk-red, wht-orn, red	6
7	Wht-brn-red, wht-grn-red	7
8	Wht-blu-red, wht-yel-red	8
9	Wht-red-red, wht-gy-red	9
10	Wht-blk-orn, wht-orn-orn	10
11	Wht-brn-orn, wht-grn-orn	1
12	Wht-blu-orn, wht-yel-orn	1
13	Wht-red-orn, wht-gy-orn	1
14	Wht-blk-brn, wht-orn-brn	1
15	Wht-brn-brn, wht-grn-brn	1
16	Wht-blu-brn, wht-yel-brn	1
17	Wht-red-brn, wht-gy-brn	1
18	Wht-blk-blu, wht-orn-blu	1
19	Wht-blu, wht-orn-blu	1
20	Wht-brn-blu, wht-gy-blu	2
21	Wht-grn, wht-orn-grn	2
22	Wht-grn-blk, wht-yel-grn	2
23	Wht-brn-grn, wht-gy-grn	2
24	Wht-blu-blk, wht-yel-blu	2
25	Wht-brn, wht-grn	2
26	Wht-blk, wht-orn	2
27	Wht-brn-gy, wht-brn-vio	2
28	Wht-yel, wht-blu-grn	2
29	Wht-red, wht-gy	2
30	Wht-blk-red, wht-orn-red	3

(3) *POSITION NO. 2, lower TA–207/P.*

Wire designation (pair)	Wire colors	Connect to binding posts
1	Wht-brn-red, wht-grn-red	
2	Wht-blu-red, wht-yel-red	
3	Wht-red-red, wht-gy-red	
4	Wht-blk-orn, wht-orn-orn	
5	Wht-brn-orn, wht-grn-orn	
6	Wht-blu-orn, wht-yel-orn	
7	Wht-red-orn, wht-gy-orn	
8	Wht-blk-brn, wht-orn-brn	
9	Wht-brn-brn, wht-grn-brn	
10	Wht-blu-brn, wht-yel-brn	1
11	Wht-red-brn, wht-gy-brn	1
12	Wht-blk-blu, wht-orn-blu	1
13	Wht-blu, wht-orn-blu	1
14	Wht-brn-blu, wht-gy-blu	1
15	Wht-grn, wht-orn-grn	1
16	Wht-grn-blk, wht-yel-grn	1
17	Wht-brn-grn, wht-gy-grn	1
18	Wht-blu-blk, wht-yel-blu	1
19	Wht-brn, wht-grn	1
20	Wht-blk, wht-orn	2
21	Wht-brn-gy, wht-brn-vio	2
22	Wht-yel, wht-blu-grn	2
23	Wht-red, wht-gy	2
24	Wht-blk-red, wht-orn-red	2
25	Wht-brn-red, wht-grn-red	2
26	Wht-blu-red, wht-yel-red	2
27	Wht-red-red, wht-gy-red	2

Wire designation pair)	Wire colors	Connect to binding posts
28	Wht-blk-orn, wht-orn-orn	28
29	Wht-brn-orn, wht-grn-orn	29
30	Wht-blu-orn, wht-yel-orn	30

(4) *POSITION NO. 2, upper TA–207/P.*

Wire designation pair)	Wire colors	Connect to binding posts
1	Wht-red-orn, wht-gy-orn	1
2	Wht-blk-brn, wht-orn-brn	2
3	Wht-brn-brn, wht-grn-brn	3
4	Wht-blu-brn, wht-yel-brn	4
5	Wht-red-brn, wht-gy-brn	5
6	Wht-blk-blu, wht-orn-blu	6
7	Wht-blu, wht-orn-blu	7
8	Wht-brn-blu, wht-gy-blu	8
9	Wht-grn, wht-orn-grn	9
10	Wht-grn-blk, wht-yel-grn	10
11	Wht-brn-grn, wht-gy-grn	11
12	Wht-blu-blk, wht-yel-blu	12
13	Wht-brn, wht-grn	13
14	Wht-blk, wht-orn	14
15	Wht-brn-gy, wht-brn-vio	15
16	Wht-yel, wht-blu-grn	16
17	Wht-red, wht-gy	17
18	Wht-blk-red, wht-orn-red	18
19	Wht-brn-red, wht-grn-red	19
20	Wht-blu-red, wht-yel-red	20
21	Wht-red-red, wht-gy-red	21
22	Wht-blk-orn, wht-orn-orn	22
23	Wht-brn-orn, wht-grn-orn	23
24	Wht-blu-orn, wht-yel-orn	24
25	Wht-red-orn, wht-gy-orn	25
26	Wht-blk-brn, wht-orn-brn	26
27	Wht-brn-brn, wht-grn-brn	27
28	Wht-blu-brn, wht-yel-brn	28
29	Wht-red-brn, wht-gy-brn	29
30	Wht-blk-blu, wht-orn-blu	30

d. Use a grease pencil to mark the identification of the circuits assigned to the drops on the TA–207/P's in the space provided.

17. Connection of TT–4A/TG

a. Loosen the knurled nuts and disconnect the dust cover ground leads from the corners of the dust cover (TM 11–5815–206–12).

b. Push the platen knob inward until it is inside the dust cover.

c. Grasp the rear corners of the dust cover to free it from the rear mounting posts and lift it straight up.

d. Connect the send (black) and receive (red) connecting cords and make the strap connections on the line terminal board of the TT–4A/TG for two-wire, vf operation (TM 11–5815–206–12).

e. Insert the power cord into one of the ac receptacles on the rear of the TT–4A/TG and TH–5/TG switch panel (fig. 14) and connect the ground lead.

18. Connection of TA–182/U

a. Connect the wiring from the signal duct to the TA–182/U's as indicated in the chart below.

Wire color	TA–182/U	
	Equipment rack designation No.	Connect to TA–182/U binding posts
Wht-yel, wht-blu-grn	1	1, 2
Wht-brn-gy, wht-brn-vio	1	5, 6
Wht-blk-red, wht-orn-red	2	1, 2
Wht-red, wht-gy	2	5, 6
Wht-blu-red, wht-yel-red	3	1, 2
Wht-brn-red, wht-grn-red	3	5, 6
Wht-blk-orn, wht-orn-orn	4	1, 2
Wht-red-red, wht-gy-red	4	5, 6

b. Operate all the ON-OFF switches on the TA–182/U switchbox to the OFF position (fig. 8) and connect each TA–182/U power cord plug into the appropriately numbered receptacle on the rear of the TA–182/U switchbox.

c. Connect the power cord plug from the TA–182/U switchbox into the TA–182/U receptacle in the power duct (fig. 8) and connect the ground.

19. Connection of TH–5/TG

a. Connect the wht-orn-blu and the wht-blu wires from the cable at POSITION NO. 1 and POSITION NO. 2, respectively (fig. 14) to the operator's emergency binding posts of each SB–86/P. Connect the other end of the wht-orn-blu wire to terminal 4, and the wht-blu wire to terminal 6, of the associated TH–5/TG.

b. Connect the TH–5/TG power cord plugs into the TH–5/TG ac receptacles on the rear of the TT–4A/TG and TH–5/TG switch panel (fig. 14) and connect the ground lead.

20. Connection of TA–312/PT

a. Connect the TA–312/PT mounted on the curb side tabletop as follows:

(1) Connect the prepared leads of the telephone cord to the LINE binding posts on the TA–312/PT.

(2) Connect the telephone cord plug into the PHONE jack in the signal duct (fig. 8).

b. Connect the TA–312/PT at POSITION NO. 1 and at POSITION NO. 2 as follows:

(1) Connect the wht-brn-blu and the wht-gy-blu wires from the cable at each phone position to the LINE binding posts of each TA–312/PF.

(2) Connect the other end of each pair ((1 above) to terminals 3 and 5 of the asso ciated TH–5/TG.

21. Connection of LS–147D/FI

a. Connect the prepared leads of the telephon cord (fig. 2) to the binding posts (E1 and E2) o the rear of the LS–147D/FI (fig. 46).

b. Connect the telephone cord plug into th INTERCOM jack in the signal duct (fig. 8).

Section III. EQUIPMENT TESTING AFTER INSTALLATION

22. General

a. Complete the grounding and power connections (pars. 26 and 27) and energize the ac circuits (par. 29) before starting the installation tests.

b. Refer to paragraph 28 for information covering the controls and instruments of the shelter components, and to the appropriate technical manual for major component operation (app. I).

23. Installation Testing of Major Components

a. Installation Test of SB–86/P.

(1) Connect each binding post pair (in binding post signal entrance boxes A and B) associated with POSITION NO. 1 to the corresponding pair associated with POSITION NO. 2, as indicated in paragraph 30*a*. For example, connect SIGNAL 3 pairs 1 through 6 to SIGNAL 3 pairs 13 through 18, and use SB–86/P jacks 25 through 30 at POSITION NO. 1 (lower TA–207/P) and at POSITION NO. 2 (lower TA–207/P) for testing.

(2) Operate switch No. 5 (EQUIPMENT) on the power distribution panel (fig. 20) to ON.

(3) Perform ringing tests between the SB–86/P at POSITION NO. 1 and the SB–86/P at POSITION NO. 2.

(4) Operate the 4W-2W-TEL switch on each TH–5/TG to the TEL position.

(5) Perform talking tests between the TA–312/PT's at POSITION NO. 1 and POSITION NO. 2.

(6) Continue the ringing and talking test until the 60 lines in each SB–86/P hav been tested.

(7) Remove all connections from binding pos signal entrance boxes A and B ((1) above except the connection between SIGNAL pair 7 and SIGNAL 3 pair 19 (jack No. on each upper TA–207/P).

b. Installation Test of TT–4A/TG's and TH–5 TG's.

(1) Operate the 4W-2W-TEL switch on eac TH–5/TG to the 2W position.

(2) Perform sending and receiving tests fro the TT–4A/TG's over the circuits of jac 1 on the upper TA–207's from each ope ating position (par. 30*a*).

(3) Remove the connections from SIGNA 3 pairs 7 and 19 (*a*(7) above).

c. Installation Test of TA–182/U's.

(1) Connect SIGNAL 3 pair 24 to SIGNAL pair 24 at binding post signal entranc box B.

(2) Patch TA–182/U's No. 1 and 2 to lines and 3 (par. 35). Perform ringing an talking tests between POSITION NO. and POSITION NO. 2 over the line circui of POSITION NO. 1 TA–207/P upper lin jack 17 and the line circuit of POSITIO NO. 2 TA–207/P upper line jack 5; us Handset-Headser H–91/U (TM 11–2134

(3) Repeat procedure (2) above for TA–182 U's 3 and 4.

(4) Remove the connecting wires ((1) above and patch cords ((2) above) as required

24. Siting

a. The location of Central Office, Teletypewriter AN/MGC–9 will depend on the tactical situation or on other local considerations. When installed on the ground, it should be located on firm, dry ground with good drainage; the site should be prepared and leveled. The AN/MGC–9 should be placed on concrete blocks or wooden beams, if possible, and positioned to facilitate connections to the power and signal entrance boxes. When the AN/MGC–9 is installed on a truck, remove the ladder from the floor of the shelter (fig. 12) and secure it to the truck tailgate.

b. If the PU–294/G is used to supply ac power, it should be located approximately 75 feet from the shelter to minimize generator noise interference with shelter operations.

25. Installation of AN/MGC–9

Note. To install the AN/MGC–9 on the ground or on a truck, four men and a device capable of lifting 5,000 pounds are required.

a. Loading AN/MGC–9 (fig. 28). If the AN/MGC–9 is to be transported by helicopter, follow only the procedures in (1) through (4) below and observe the airlift warning notice mounted on the outside of the shelter. If the AN/MGC–9 is to be installed on a truck, follow the procedures in (1) through (10) below.

(1) Use the sling center hooks (nearest the turnbuckles) (fig. 29) to connect the sling assembly to the shelter lifting eyes.

(2) Place the sling assembly on top of the shelter.

(3) Connect the four sling hooks to the lifting ring.

(4) Place the lifting ring over the hook on the lifting device.

Warning: **To avoid injury to personnel and damage to equipment, only the personnel engaged in the actual loading operation should be permitted near the truck, the lifting device, and the shelter. To eliminate confusion, all instructions must come from the loading crew supervisor.**

(5) Tie a ½-inch rope (at least 15 feet long) to each rear towing eye.

(6) Check to see that all tools and equipment are removed from the truck body. Lower the tailgate of the truck.

(7) Slowly lift the shelter from the ground to a position high enough to clear the body of the truck.

(8) Back the truck into position under the shelter.

Warning: **All personnel must remain clear of the truck while the shelter is being lowered into position.**

(9) Position a man at each of the ½-inch ropes to guide the shelter into position, and slowly lower it onto the truck body.

Note. The entrance door of the shelter must be at the rear of the truck, and the front of the shelter, against the front of the truck body.

(10) Remove the lifting ring from the lifting hook and disassemble the lifting ring and sling hooks. Remove the sling center hooks from the shelter lifting eyes and the ½-inch ropes from the shelter towing eyes. Raise and secure the tailgate of the truck.

b. Securing AN/MGC–9 on Truck (fig. 29). Secure the shelter on a truck as follows:

(1) Use the sling hooks farthest from the turnbuckles and hook each of the four sling hooks to a tiedown eye on the shelter.

(2) Use the sling assembly cable attached to the tiedown eye at the left-front of the shelter, and place the sling hook nearest the turnbuckle under the side rail and behind the second cargo rack support from the rear of the truck.

(3) Use the sling assembly cable that is attached to the tiedown eye at the left-rear of the shelter and place the sling hook nearest the turnbuckle under the side rail and in front of the second cargo rack support from the front of the truck.

(4) Follow the procedures given in (2) and (3) above to secure the right side of the shelter.

(5) After the sling assembly has been attached to the side rails of the truck, tighten the turnbuckles.

Caution: **Do not overtighten the turnbuckles. To prevent the AN/MGC–9 from twisting in the truck body, tighten all the turnbuckles equally, at the same time.**

c. Unloading AN/MGC–9. To unload an AN/MGC–9 from a truck, perform the procedures given in *a* and *b* above in reversed order.

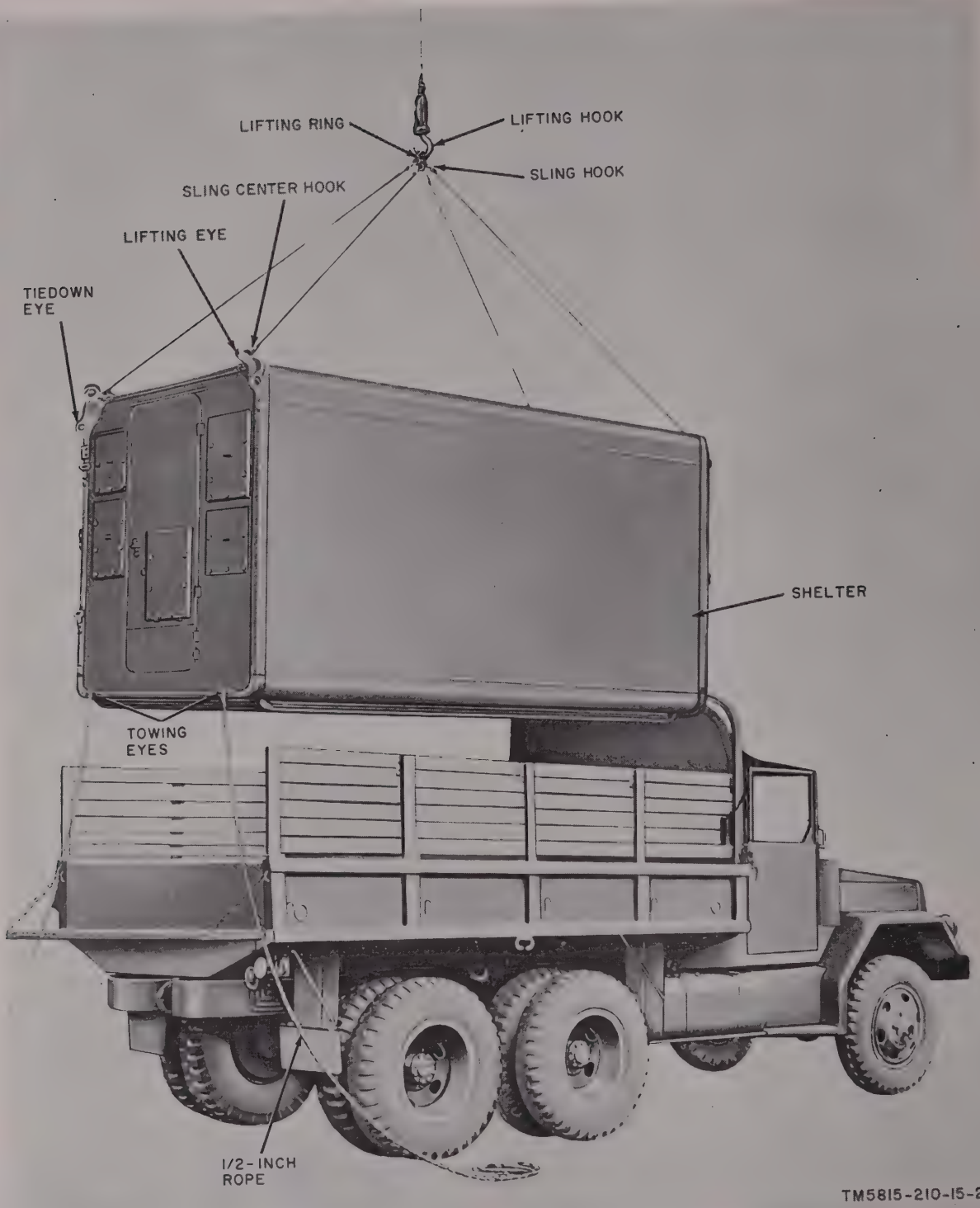


Figure 28. Loading shelter on truck.

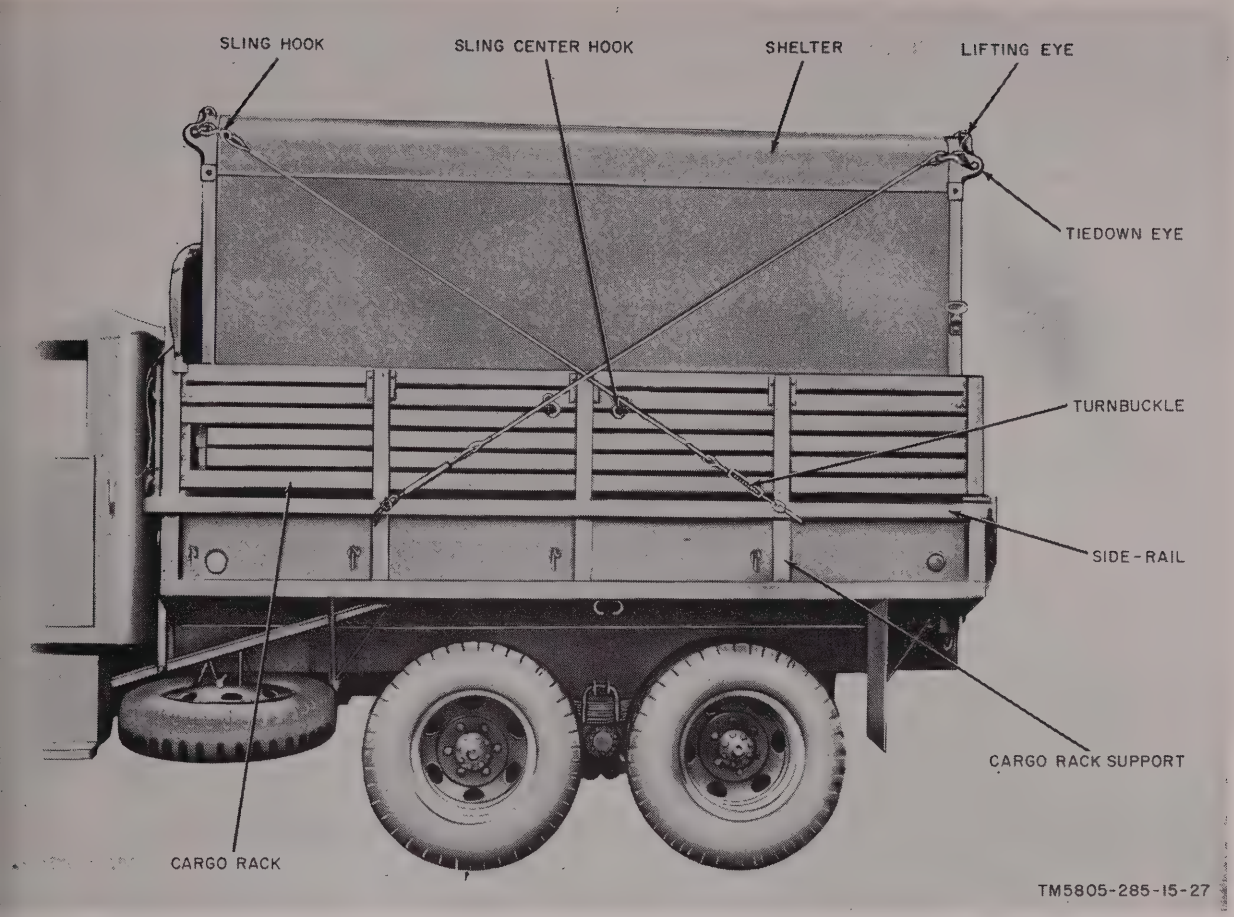


Figure 29. Securing shelter on truck.

6. Grounding

The AN/MGC–9 must be properly grounded fore input power is connected. Select a grounding e that will not interfere with the entrance door, e field wires, or the power cable. Ground the N/MGC–9 as follows:

a. Loosen the captive screws and lift the cover of e power and signal entrance box (fig. 16).

b. Use the cover support to secure the cover in e open position.

c. Remove the ground rods and the sledge hammer g. 11) from their mountings.

d. Select the lowest, dampest sites within 10 feet the power entrance box and within 10 feet of the J–294/G; scoop out a small hole, about 6 inches ep, next to each site.

e. Remove any paint or grease from the ground ds.

f. Drive the ground rods into the holes until the p of each ground rod is approximately 3 inches ove ground level.

g. Saturate the ground around the rods with water to keep it moist.

h. Remove the 10-foot ground straps from their storage drawer.

i. Connect one end of a ground strap to each ground rod. Connect the other end of the shelter ground strap to the bottom GROUND TERMINAL in the power entrance box (fig. 16), and connect the end of the other ground strap to the ground terminal of one PU–294/G.

27. Power Connections

Ac power for the AN/MGC–9 may be obtained from Trailer Mounted Gasoline Engine Generator Set PU–294/G, from a central power source, or from a commercial power source.

Caution: **Complete the grounding procedures (par. 26) before connecting the power to the AN/MGC–9.**

a. Preliminary Procedures. Before making the power connections, proceed as follows:

(1) Make sure that all shelter and component switches are in their *off* positions.

(2) Remove and store the tiedown bar (fig. 4) and remove the power cable assembly and reel from the shelter.

Note. The power cable stub with power connectors on both ends can be used to obtain power from an adjacent shelter, providing the source output rating is not exceeded. Connect one end as in *b*(1) below and the other end to the POWER 115V AC OUT receptacle of the adjacent shelter.

(3) Unwind the power cable assembly from the reel and remove the connector covers. Store the reel in the shelter.

b. Using Trailer Mounted Gasoline Engine Generator Set PU–294/G.

(1) Remove the cover from the IN POWER 115 v AC receptacle in the power entrance box (fig. 16) and connect one end of the power cable assembly.

(2) Remove the power cable stub with the prepared leads (fig. 2) from its storage drawer. Connect the red and white leads of the power cable stub to one PU–286/G POWER LINE TERMINAL and the black lead to the other POWER LINE TERMINAL (TM 11–940A).

(3) Remove the cover from the power cable stub connector. Connect the power cable stub to the power cable.

c. Using Commercial Power.

(1) Turn off or disconnect the commercial power before making any connections.

(2) Remove the power cable stub (fig. 2) from its storage drawer. If the power source is a 50- to 60-cps, 120-240-volt, 2-phase three-wire distribution system, connect the red and white leads of the power cable stub to the neutral bus bar and the black lead to the phase-1 or phase-2 bus bar of the commercial source.

(3) If the power source is a 50- to 60-cps 120–208-volt, 3-phase, four-wire distribution system, connect the red and white leads of the power cable stub to the neutral bus bar and the black lead to the phase-1 phase-2, or phase-3 bus bar.

(4) Remove the cover from the power cable stub connector. Connect the power cable stub to one end of the AN/MGC–9 power cable.

(5) Remove the cover from the IN POWER 115 v AC receptacle in the power entrance box (fig. 16) and connect the other end of the power cable.

28. Controls and Instruments

The following are the descriptions and functions of the controls and instruments of the shelter components. For information concerning the controls and instruments of the major components, refer to the applicable technical manuals (app. I).

a. Power distribution panel (fig. 20).

Control, indicator, or instrument	Description and function
MAIN circuit breaker switch	Two internally ganged 50-ampere circuit breakers. Provides overload protection for 115 volt, ac input source and ON-OFF control of ac power to individual circuit breaker switches.
Individual circuit breaker switches:	Provide ON-OFF control and overload protection for individual circuits as follows:
1 LIGHTS	15 amperes Fluorescent lights.
2 BLOWERS	15 amperes Exhaust blower No. 1 and No. 2 receptacles.
3 HEATER 1	20 amperes Electric heater No. 1 power receptacle.
4 CONVENIENCE	20 amperes Convenience receptacles.
5 EQUIPMENT	15 amperes Major component receptacles.
6 HEATER 2	20 amperes Electric heater No. 2 power receptacle.
Voltmeter	Ac voltmeter with 0- to 150-volt scale. Indicates ac input voltage from external power source.
Ammeter	Ac ammeter with 0- to 50-ampere scale. Indicates total current drain from external power source by AN/MGC–9 components in use.
Glowlamp (6)	Neon lamp. Glows when associated circuit breaker switch is ON.

b. Lighting (fig. 8, 11, and 13).

Control, or indicator	Description and function
LACKOUT BYPASS switch (fig. 11)	Two-position, ON-OFF switch. Controls lighting in the AN/MGC–9 for blackout operation as follows: ON Fluorescent lights to be controlled by the individual light switches. OFF Fluorescent lights to be controlled by door microswitch.
WER INDICATOR NEON LAMP (fig. 11).	Neon lamp. Lights when ac power is connected to the AN/MGC–9.
or microswitch	Microswitch. Extinguishes fluorescent lights when shelter door is opened. (BLACKOUT BYPASS switch in OFF position).
GHT 1 switch	Two-position, ON-OFF switch. Controls two fluorescent lights in each row (fig. 13).
GHT 2 switch	Two-position, ON-OFF switch. Controls two fluorescent lights in each row.
GHT 3 switch (fig. 13)	Two-position, ON-OFF switch. Controls fluorescent light behind SB–86/P's.
otlight switches (2) (fig. 13)	Two-position, ON-OFF switch on each lamp. Controls spotlights for the two switchboard positions.
GHTLIGHT switch (fig. 8)	Two-position, ON-OFF switch. Controls nightlight.

c. Blowers (figs. 8 and 9).

Control	Description and function
OWER 1 switch	Two-position, ON-OFF switch. Controls operation of BLOWER 1.
OWER 2 switch	Two-position, ON-OFF switch. Controls operation of BLOWER 2.

d. Intercommunication Station LS–147D/FI (fig. 22).

Control, or indicator	Description and function
F-SEND switch	Ganged ON-OFF switch and potentiometer. Turns ac power on and off and controls volume of output signal. Switch must be *on* to originate a call.
ESS TO TALK switch	Two-position, nonlocking switch. Switch must be pressed to originate a call.
CEIVE control	Potentiometer. Controls speech volume to loudspeaker.
wlamp	Neon lamp. One-half of lamp glows when internal dc power supply is operating.

e. Patch Panel (fig. 23).

Jack	Description and function
NN. ( ) [a] PR 23 & 24:	Terminating jacks. Provide a means of connecting a line pair to the TA–182/U's.
TA–182/U ( ) [b] LOOP jacks (4)	
TA–182/U ( ) [b] LINE jacks (4)	
NN. ( ) [a] PR 23 & 24:	Cutoff jacks. Provide a means of inserting these SB–86/P lines through the TA–182/U's.
SB–86/P ( ) [c] LINE ( ) [d] Jacks (8)	
ARE BINDING POST & JACK:	
Jacks (2)	Terminating jacks. Provide a means of connecting equipment directly to external lines.
Binding posts (4)	Binding posts. Connected in parallel with the SPARE jacks.

[a] Designated by signal connectors (2–5).
[b] Designated by TA–182/U No. (1–4).
[c] Designated by SB–86/P (1 or 2, upper or lower TA–207/P).
[d] Designated by LINE No. (5, 6, 17, 18, 23, 24, 29, or 30).

f. TA–182/U Switchbox (fig. 24).

Control, or indicator	Description and function
ON-OFF switch (4)	Two-position toggle switch. Controls ac power to the associated TA–182/U.
Glowlamp (4)	Neon lamp. Glows when associated toggle switch is at ON.

g. TT–4A/TG and TH–5/TG Switch Panel (fig. 25).

Control, or indicator	Description and function
ON-OFF switch (2)	Two-position toggle switch. Each switch controls ac power for one TT–4A/T and TH–5/TG.
Glowlamp (2)	Neon lamp. Glows when associated toggle switch is in ON position.

h. Electric Heater (fig. 21).

Control	Description and function
HEAT-OFF-FAN switch	Three-position toggle switch. HEAT Applies ac power to heater element and fan motor. OFF Disconnects ac power from heater element and fan motor. FAN Applies ac power to fan motor only.
TEMPERATURE CONTROL	Thermostat control. Regulates temperature provided by heating element.
RESET pushbutton	Pushbutton which resets protective circuit-breaker within heater.

29. Energizing Ac Circuits

Perform the following preliminary starting procedures to prepare Central Office, Teletypewriter AN/MGC–9 for full operation:

a. When the PU–294/G is used to supply ac power, start the PU–286/G (TM 11–940A).

b. When a commercial power source is used, apply power from the source terminals.

c. Operate the MAIN circuit breaker switch on the power distribution panel (fig. 20) to ON.

d. Operate the BLACKOUT BYPASS swit (fig. 11) to ON. When blackout conditions a required, operate the switch to OFF.

e. Operate the circuit breaker switch No. (LIGHTS) to ON.

f. Operate the LIGHT 1 and LIGHT 2 switch (fig. 11) to ON.

g. Check the voltmeter (fig. 20). It should ind cate 115 volts ac ± 10.

h. Check the ammeter. It should indicate nea 0 ampere.

i. Operate circuit breaker switches No. 2 throu 6 to ON.

Section V. SIGNAL CONNECTIONS

30. Circuit Planning

Signal circuits may be terminated at the AN/MGC–9 by using 26-pair cables and/or field wire connections.

a. Switchboard Circuits. Local and trunkline terminations may be completed by connecting 26-pair cables at the power and signal entrance b and the connector signal entrance box, or by co necting field wires at binding post signal entran boxes A and B. The chart below identifies ea 26-pair receptacle and binding post pair number the entrance boxes with the switchboard line ja number to which it connects.

Binding posts and 26-pair receptacles		SB–86/P		
SIG-NAL	Pair No.	Position No.	TA–207/P	Jack No.
1	1–12	1	Lower	1–12
1	13–24	2	Lower	1–12
2	1–12	2	Lower	13–24
2	13–24	1	Lower	13–24
3	1–6	1	Lower	25–30
3	7–12	1	Upper	1–6
3	13–18	2	Lower	25–30
3	19–24	2	Upper	1–6
4	1–12	2	Upper	7–18
4	13–24	1	Upper	7–18
5	1–12	1	Upper	19–30
5	13–24	2	Upper	19–30

b. Intershelter Circuits. Local line terminations or the TA–312/PT and the LS–147D/FI may be made at the power and signal entrance box and the connector signal entrance box to pairs 25 and 26 of any of the 26-pair receptacles, or by field wire connections to binding post pairs 25 and 26 in binding post signal entrance boxes A and B, or to the PHONE and INTERCOM binding posts in the power and signal entrance box.

11. Connection Procedure for 26-Pair Cables (figs. 30 and 31)

To couple connectors on 26-pair cables CX–566/U(250 ft) and CX–4760/U(15 ft), use the procedure in *a* below. To couple the connectors to the receptacles in the power and signal entrance box and connector signal entrance box (figs. 16 and 19), use the procedure in *b* below.

a. Coupling 26-pair Connector (fig. 30).

***Caution:* Handle the 26-pair connectors with care during the coupling and uncoupling procedures. Do not force or twist the connectors during installation. Never drop or place an uncovered 26-pair connector on the ground.**

(1) *Cover removal.*
- (*a*) With each hand, grasp the knurled collar on each end of the connector and turn the collars until the open position is reached (A, fig. 30).
- (*b*) Disengage the cam on the top of the cover from the slot on the connector collar. Lift and remove the cover (B, fig. 30).

(2) *Coupling procedure.*
- (*a*) Position the two 26-pair connectors so that the cams drop into the slots of the knurled collars and the male contacts are alined with the female contacts (C, fig. 30).
- (*b*) Carefully press the two connectors together (D, fig. 30).
- (*c*) Lock the two connectors by turning the knurled collars until the closed position is reached (E, fig. 30).
- (*d*) Lock the two connector covers together.

(3) *Uncoupling procedure.*
- (*a*) Unlock the 26-pair connectors by turning the knurled collars until the open position is reached (A, fig. 30).
- (*b*) Carefully pull the connectors apart.

(4) *Cover replacement.*
- (*a*) Unlock the two connector covers.
- (*b*) Position the cover on top of the 26-pair connector.
- (*c*) Engage the cam on the top of the cover in the slot on the connector collar (A, fig. 30).
- (*d*) Lock the cover to the connector by turning the collars until the closed position is reached.

b. Coupling 26-Pair Connector to 26-Pair Receptacle (fig. 31). The cover removal and replacement procedures for a 26-pair receptacle (A–D, fig. 31) are the same as those described for the 26-pair connector (*a*(1) above). Connect and disconnect a 26-pair connector to the 26-pair receptacle as follows.

Note. The cable end of the connectors is used as a reference for clockwise or counterclockwise rotations.

(1) *Connecting procedure.*
- (*a*) Remove the covers and lock them together.
- (*b*) Position the 26-pair connector on the receptacle so that the cams drop into the slots of the knurled collars, and the male contacts are alined with the female contacts (E and F, fig. 31).
- (*c*) Carefully press the connector into the receptacle (G, fig. 31).
- (*d*) Turn the lever on the receptacle knurled collar counterclockwise until the collar just engages the cam.
- (*e*) Turn the knurled collar on the connector clockwise until the sleeve *just* engages the cam.
- (*f*) Simultaneously turn the receptacle collar lever and the connector collar until the closed position is reached (G, fig. 31).

(2) *Disconnecting procedure.*

(*a*) Simultaneously turn the receptacle collar lever and the connector collar until the open position is reached.

(*b*) Carefully pull the connectors apart.

(*c*) Replace the covers (*a*(4) above).

32. Field Wire Connections

a. Connect the field wire pairs to the SIGNAL 1 through SIGNAL 5 binding posts in binding post signal entrance boxes A and B (figs. 17 and 18) and to the PHONE and INTERCOM binding posts in the power and signal entrance box (fig. 16).

(1) Loosen the captive screws and lift the covers of the entrance boxes (figs. 16–19).

(2) Use the cover support to secure each cover in the open position.

(3) Press down on the binding posts to open the wire slots. Place the field wire pairs in the appropriate slot and release the binding posts.

(4) In binding post signal entrance boxes A and B (figs. 17 and 18), distribute and retain the wires in the bridle rings associated with each row of binding post pairs.

b. Use Distribution Box J–1077A/U and connect Cable Assembly, Telephone CX–4760/U (15 ft) to field wire pairs from binding post signal entrance box A or B into a 26-pair cable as follows:

(1) Remove the J–1077A/U from its mounting (fig. 10) and place it adjacent to the coupled connectors of the 26-pair cable.

(2) Uncouple the 26-pair connectors (par. 31*a*(3)) and connect them to the 26-pair receptacles (par. 31*b*(1)) on the J–1077A/U.

(3) Release the fasteners and open the cover on the J–1077A/U.

(4) Connect the CX–4760/U prepared lead or the field wire pairs to the appropriate binding posts and secure the cover on the J–1077A/U.

Note. The wire colors of the CX–4760/U are the same as the wire colors of the 26-pair cable.

CHAPTER 3
OPERATING INSTRUCTIONS

3. Types of Operation

The AN/MGC–9 provides switching facilities for to 120 vf teletypewriter circuits. The AN/GC–9 can also be used for telephone switching or a combination switching central for teletype-iter and telephone circuits simultaneously. A tch panel permits the TA–182/U's to be used ıen required.

4. Operating Procedures

Operating procedures for the major components the AN/MGC–9 and monitoring procedures for letypewriter and/or telephone circuits are given applicable technical manuals (app. I). Follow e procedures outlined below to operate the shelter mponents. Refer to paragraph 28 for an explana-ın of controls and instruments.

a. Electric Heaters (fig. 21).

(1) Connect the power cord connector plug into the associated HEATER receptacle (figs. 8 and 11).

(2) Operate the HEAT-OFF-FAN switch to the desired position.

(3) If the HEAT-OFF-FAN switch is operated to HEAT, set the TEMPERATURE CONTROL to the desired setting.

b. Intercommunication Station LS–147D/FI (fig.).

(1) Connect the power cord connector plug into the INTERCOM receptacle.

(2) Operate the OFF-SEND switch to 5 (approximately midposition). The glow-lamp will light.

(3) Operate the PRESS TO TALK switch and speak into the speaker-microphone on the front panel; release the PRESS TO TALK switch to receive.

Note. The OFF-SEND switch does not have to be operated to receive a call.

(4) Operate the RECEIVE control to regulate the volume of incoming calls.

c. Exhaust Blowers.

Caution: **Open the air filter in the shelter door and the exhaust blower vent covers on the front of the shelter before operating the blowers. Operate the BLOWER 1 and BLOWER 2 switches in the curb side and roadside power ducts (figs. 8 and 9) to the ON positions as desired.**

d. TA–182/U Switchbox fig. 24). Operate the four ON-OFF switches on the TA–182/U switchbox to ON.

e. TT–4A/TG AND TH–5/TG Switch Panel (fig. 25). Operate the two ON-OFF switches to ON.

35. Patching

Patching in the AN/MGC–9 is required only when the TA–182/U's are used to provide vf ringing to the line facilities.

a. To use the TA–182/U in equipment rack position No. 1:

(1) Insert one end of a patch cord into the CONN. 2 PR 23 & 24 TA–182/U 1 LOOP jack (fig. 23), and the other end into the CONN. 2 PR 23 & 24 SB–86/P 1 LOWER TA–207/P LINE 23 jack.

(2) Insert one end of a patch cord into the CONN. 2 PR 23 & 24 TA–182/U 1 LINE jack, and the other end into the CONN. 2 PR 23 & 24 SB–86/P 1 LOWER TA–207/ P LINE 24 jack.

b. To use the TA–182/U's in equipment rack positions No. 2, 3, and 4, follow the procedure in a(1) and (2) above, using the appropriate jacks.

36. Stopping Procedures

Note. To turn the power off in an emergency, operate the MAIN circuit breaker switch to OFF.

a. Major Components. Refer to the applicable technical manuals for stopping procedures (app. I). Except in an emergency, turn off all major components before the associated circuit breaker switches in the power distribution panel (fig. 20) are operated to OFF.

b. Shelter Components.

Note. After the major components (*a* above) and the electric heater have been turned off, allow the blowers to remain in operation for at least 10 minutes to evacuate all smoke and fumes before completing the stopping procedures and closing the shelter door.

(1) *Electric heaters.* Operate the TEMPERATURE CONTROL to the lowest setting, and the HEAT-OFF-FAN switch to OFF.
(2) *Intercommunication Station LS–147D/FI.* Operate the OFF-SEND control to OFF.
(3) *Exhaust blowers.* Operate the BLOWER 1 and BLOWER 2 switches to OFF. Close the air filter in the shelter door and the blower vent covers on the front of the shelter.
(4) *TA–182/U switchbox.* Operate the four ON-OFF switches to OFF.
(5) *TT–4A and TH–5/TG switch panel.* Operate the two ON-OFF switches to OFF.
(6) *Circuit breaker and light switches.* Operate all circuit breaker and light switches to OFF.

37. Operation Under Adverse Climatic Conditions

Central Office, Teletypewriter AN/MGC–9 can be operated in extremely cold or hot climates. The shelter offers complete protection from the elements for personnel and equipment; however when the signal and power entrance boxes are exposed to adverse conditions, the following precautions are necessary:

a. Cold Climates. Extreme cold causes cable and wires to become hard, brittle, and difficult to handle. Be careful when handling the cables and connecting them to the shelter so that kinks and unnecessary loops will not result in permanent damage. Make sure that binding posts, connectors and receptacles on the outside of the shelter are free of frost, snow, and ice by replacing the covers on the connectors and receptacles, and closing the cover of the entrance boxes when they are not in use. Lower the folding side panels when the entrance box covers are open. Replace the connector and receptacle covers as soon as they are disconnected; do not drag or place an open connector in the snow.

b. Hot Climates. In hot, dry climates, the connectors, receptacles, and binding posts are subject to damage from dirt and dust. Lower the folding side panels when the entrance box covers are open. Replace the covers on the connectors and receptacles and close the covers on the entrance boxes when they are not in use. Do not drag or place an open connector on the ground.

c. Warm, Damp Climates. In warm, damp climates, equipment is subject to damage from moisture and fungi. Wipe all moisture and fungi from the exterior of the equipment with a lint-free cloth

CHAPTER 4
MAINTENANCE INSTRUCTIONS

Section I. OPERATOR'S MAINTENANCE

8. General Maintenance

Clean and inspect all components of the AN/IGC–9 regularly. Detailed maintenance procedures pertaining to the major components are described in the appropriate technical manuals (app. I).

a. Use a clean, dry, lint-free cloth, a brush or vacuum cleaner for removing dust from the equipment.

b. For cleaning, if necessary, moisten the cloth or brush with cleaning compound (FSN 7930–395–9542); after cleaning, wipe dry with a cloth. Do not use cleaning compound on electrical contacts.

Warning: **Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.**

c. To clean electrical contacts, use a cloth moistened in drycleaning, solvent (SD); then wipe with a dry cloth.

d. Dry compressed air, not exceeding 60 pounds per square inch, may be used to remove dust from inaccessible places.

Warning: **Compressed air is dangerous and can cause serious damage to eyes, ears, nose, and other parts of the body. It can also cause mechanical damage to the equipment. Do not use compressed air to dry parts where cleaning compound or solvent has been applied.**

9. Tools, Test Equipment, and Materials Required

a. Tools and Test Equipment. The tools and test equipment required for operator's maintenance of major components are listed in the applicable technical manuals (app. I). The tool roll kit (fig. 2) is required for maintenance of the shelter equipment.

b. Materials.

Item No.	Item	Federal stock No.
1	Abrasive sheet; sandpaper #0000; 9 x 12 in. sheets.	627500–0000 [a]
2	Cloth, textile; cheesecloth, lint-free, 36 in.	408–2701 [b]
3	Solvent, dry cleaning (SD)	51–S4385–1 [c]
4	Orangestick	5120–408–4036
5	Tape TL–83	5970–184–2003
6	Cleaning compound	7930–395–9542
7	Abrasive, sheet; crocus cloth, 9 x 11 in.	(Ord) [d]
8	Polish, metal; paste	6G1516 [a]
9	Lubricating oil, general purpose, preservative (PL special).	14–0–2834–10 [d]
10	Oil, lubricating, internal combustion engine (OE–10).	
11	Grease, graphite, aircraft (GGA).	

[a] Signal Corps stock No.
[b] Interim Federal stock No.
[c] Quartermaster Corps stock No.
[d] Ordnance Corps items.

40. Daily Preventive Maintenance

a. Check for completeness and general condition of the equipment and spare parts.

b. Remove dirt, dust, grease, and moisture from the exposed parts.

c. Remove rust, corrosion, fungi, dirt, and moisture from the binding posts, cable connectors, and receptacles.

d. Inspect the field wire connections at the binding posts for good contact.

e. Inspect the lettering on the designation strips for legibility.

f. Inspect the ground rods and the ground strap connections for good contact.

g. Inspect all exposed cable for kinks, strains moisture, fungi, loose terminals, and frayed, cut, or damaged insulation.

h. Tighten loose mounting hardware.

41. Weekly Preventive Maintenance

a. Clean and tighten components, racks, mountings, installations, cables, and connectors.

b. Inspect components, racks, mountings, installations, and exposed metal surfaces for rust, corrosion and moisture.

c. Inspect the cables and wires for cuts, breaks, fraying, deterioration, kinks, and strain.

d. Inspect for looseness of accessible items such as switches, signal and ac cable assemblies, and glowlamps.

e. Clean the air filter, nameplates, meters, and clock.

f. Inspect the meters and clock for damaged glass and cases.

g. Wind the clock (fig. 14).

h. Inspect the shelter for proper support, installation, rust, corrosion, and moisture.

i. Check entrance boxes, exhaust blower vents, and air filter for cracks, leaks, damaged gaskets, dirt, and grease.

j. Check for normal operation (par. 43).

42. Monthly Preventive Maintenance and Lubrication

a. Lubricate the door locks and latches. Use grease (GGA).

b. Lubricate the door hinges and the hinges entrance box covers, exhaust blower vent covers, and air filter cover. Use oil (PL special) or oil (OE–10).

c. Lubricate all metal-to-metal moving parts.

Caution: **More frequent lubrication may be required for items listed above in excessively hot, humid, or dusty areas. Do not overlubricate.**

d. Remove the shelter air filter and soak it in cleaning compound, benzine, or naphtha. Shake loose dirt from the air filter, air dry it, and replace it in its mounting.

e. Inspect the fire extinguishers (figs. 9 and 14) for broken wire seals on the trigger mechanisms. If the extinguisher has been used, or if there are signs of leakage, request that it be recharged.

43. Equipment Performance Checklist

This checklist is used to systematically check the ac circuits of the shelter after the AN/MGC–9 has been connected to the power source (par. 27). Only the first echelon maintenance corrective measures are given in the *Corrective measures* column. If the corrective measures given do not correct their fault, request higher echelon maintenance. When using the checklist, start at the beginning and follow each step consecutively. If the trouble is suspected in a particular area, start checking at that point and continue the steps sequentially. Refer to the power schematic wiring diagram (fig. 38) when checking circuits. When a fault or trouble is located in a major component, refer to the applicable technical manual (app. I). First echelon repair procedures are given in paragraphs 44 through 52.

	Item No.	Item	Action or condition	Normal indications	Corrective measures
PREPARATORY	1	All shelter and component and switches controls.	Operate to OFF	POWER INDICATOR NEON LAMP remains on.	Replace POWER INDICATOR NEON LAMP (par. 45*c*).
	2	MAIN circuit breaker switch (fig. 20).	Operate to ON.		
	3	Voltmeter (fig. 20)	Use the hand lantern and read the meter.	Voltmeter indicates 115 volts ±10.	*a.* Reset MAIN circuit breaker switch to OFF and then to ON. *b.* Check ac power source. Check power cable assembly and replace.
	4	Ammeter (fig. 20)	Use the hand lantern and read the meter.	Ammeter indicates zero	Check to see that all other circuit-breaker switches on power distribution panel are OFF.
	5	Circuit breaker switch (fig. 20): No. 1 (LIGHTS)	*a.* Operate to ON	*a.* Glowlamp above circuit breaker lights.	*a.* Replace glowlamp (par. 45*c*).

Item No.	Item	Action or condition	Normal indications	Corrective measures
		b. Operate LIGHT 1 and LIGHT 2 switches to ON (fig. 11).	*b.* Fluorescent lights go on.	*b.* Reset circuit-breaker switch No. 1 to OFF and then to ON. If some, but not all, of the lights fail to go on, replace the faulty lamp or starter (pars. 45*a* and *b*).
		c. Release door microswitch by opening door.	*c.* Fluorescent lights go out. POWER INDICATOR NEON LAMP remains on.	*c.* Replace POWER INDICATOR NEON LAMP (par. 45*c*).
		d. Operate BLACKOUT BYPASS switch to ON (fig. 11).	*d.* Fluorescent lights go on.	
	No. 2 (BLOWERS)	*a.* Operate to ON	*a.* Glowlamp above the circuit breaker switch lights.	*a.* Replace glowlamp (par. 45*c*).
		b. Operate BLOWER 1 switch to ON (fig. 9).	*b.* Ammeter indicates approximately 3 amperes. BLOWER 1 operates.	*b.* Replace blower (par. 47).
		c. Repeat procedures listed in *a* and *b* above for BLOWER (fig. 8).		
	No. 3 (HEATER 1)	*a.* Operate to ON	*a.* Glowlamp lights	*a.* Replace glowlamp (par. 45*c*).
		b. Operate heater HEAT-OFF-FAN switch to HEAT. Operate TEMPERATURE CONTROL to desired position (fig. 21).	*b.* Ammeter indicates above 16 amperes. Warm air is blown from front of heater. When temperature rises to thermostat temperature setting, heat will cut off.	*b.* Press heater RESET button.
		c. Operate heater HEAT-OFF-FAN switch to FAN (fig. 21).	*c.* Air (at room temperature) is blown from front of heater.	
	No. 4 (CONVENIENCE)	*a.* Operate to ON	*a.* Glowlamp lights	*a.* Replace glowlamp (par. 45*c*).
		b. Check voltage at each CONVENIENCE 4 receptacle with Multimeter AN/URM–105.	*b.* Voltage indication at each receptacle is the same as voltmeter indication on power distribution panel.	
	No. 5 (EQUIPMENT)	*a.* Operate to ON	*a.* Glowlamp lights	*a.* Replace glowlamp (par. 45*c*).
		b. Check voltage at each receptacle with Multimeter AN/URM–105.	*b.* Voltage at indication receptacle is the same as voltmeter indication on power distribution panel.	
		c. Operate both switches on the TT–4A/TG and TH–5/TG switch panel to ON (fig. 25).	*c.* Glowlamp above switch lights.	*c.* Replace glowlamp (par. 45*c*).
		d. Operate each TA–182/U switchbox ON-OFF switch to ON.	*d.* Glowlamp above switch lights.	*d.* Replace glowlamp (par. 45*c*)
	No. 6 (HEATER 2)	*a.* Operate to ON	*a.* Glowlamp lights	*a.* Replace glowlamp (par. 45*c*).

	Item No.	Item	Action or condition	Normal indications	Corrective measures
PREPARATORY			*b.* Operate heater HEAT-OFF-FAN switch to HEAT. Operate TEMPERATURE CONTROL to desired position. *c.* Operate heater HEAT-OFF-FAN switch to FAN.	*b.* Ammeter indicates above 16 amperes. Warm air is blown from front of heater. When temperature rises to thermostat temperature setting, heat wlll cut off. *c.* Air (at room temperature) is blown from front of heater.	*b.* Press heater RESET button.
EQUIP. PERF.	6	Shelter components	Operate as described in paragraph 34.		
	7	Major components	Operate equipment as described in applicable manuals (app. I).		
STOP	8	Major components	Perform stopping procedures as described in applicable technical manual (app. I).		
	9	Shelter components	Perform stopping procedures described in paragraph 36.		

44. Replacement of Hand Lantern Batteries and Bulb

(fig. 32)

The hand lantern requires four batteries BA–30 which are not supplied with the lantern. A spare bulb is stored inside the reflector case.

a. Replacing Batteries.

(1) Pull the battery case latch forward and raise the battery case cover.

(2) Insert four batteries in the case with the center brass caps up.

(3) Snap the battery case cover shut.

b. Replacing Bulb.

(1) Press the button on the bottom of the reflector case and lift out the reflector.

(2) Unscrew the brass cap on the rear of the bulb and remove the bulb and spring.

(3) Remove the spare bulb from inside the reflector case. Insert the bulb and spring in the reflector and tighten the brass cap.

(4) Replace the reflector in the reflector case and snap it securely in position.

45. Removal and Replacement of Lamp and Fluorescent Lamp Starters

a. Fluorescent Lamp.

(1) Pull gently to remove the light shiel from the fluorescent light fixture.

(2) Rotate the lamp in its sockets ¼ turn an remove it from the fixture.

(3) Remove a spare lamp from the ceilin storage brackets (fig. 13).

(4) Aline the lamp with the slots in the fixtu sockets.

(5) Press in and rotate the lamp ¼ turn seat the pins firmly.

(6) Replace the light shield on the fluorescer light fixture.

b. Fluorescent Lamp Starter.

(1) Remove the light shield and lamp (*a*(and (2) above) to expose the starter.

(2) Press in and twist the starter ¼-tu counterclockwise and withdraw it.

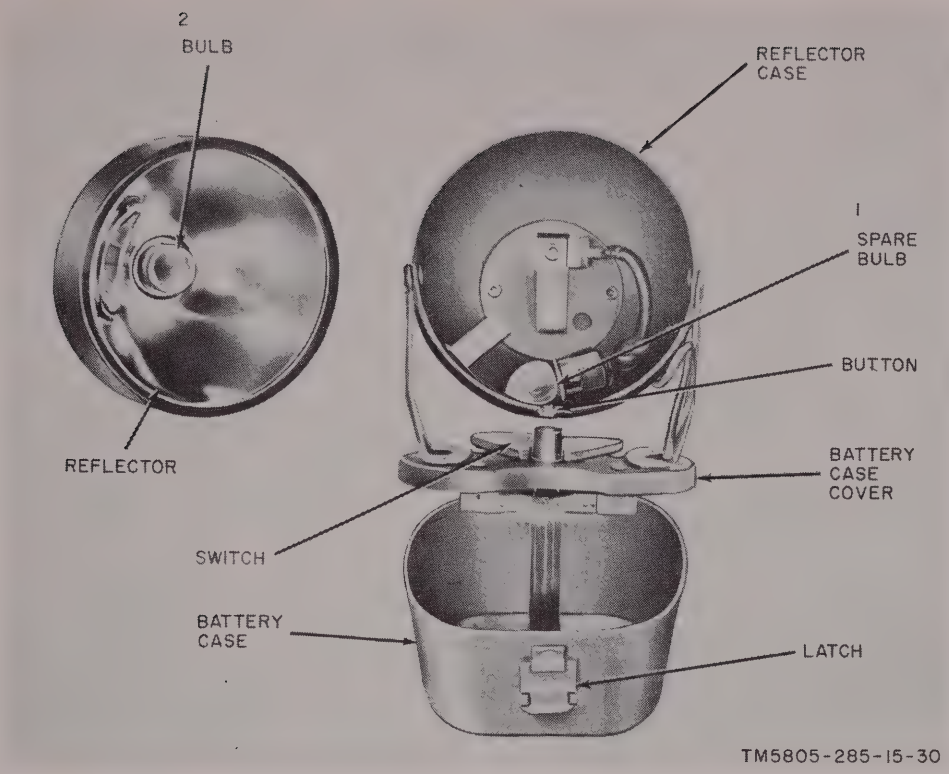


Figure 32. Hand lantern, identification of parts.

(3) Remove a spare starter from the ceiling storage bracket (fig. 13). Insert the new starter, press in, and turn it clockwise until it seats.

(4) Replace the lamp and light shield (*a* (4) through (6) above).

c. Neon and Incandescent Lamps. To remove a fective neon or incandescent lamp, unscrew it m its socket.

5. Removal and Replacement of Electric Heater

(fig. 21)

a. Removal.

(1) Operate the HEATER-OFF-FAN switch to OFF.

(2) Remove the power cord connector plug from the HEATER receptacle (figs. 8 and 11).

(3) Loosen the four turnlock fasteners that secure the heater to the mounting base.

(4) Loosen and remove the mounting base knob.

(5) Slide the heater to the right until it clears the flange on the mounting base and lift out the heater.

b. Replacement.

(1) Slide the heater onto the mounting base so that it engages the flanges.

(2) Tighten the four turnlock fasteners.

(3) Replace and tighten the mounting base knob.

47. Removal and Replacement of Exhaust Blower Cover

a. Operate the BLOWER switch to OFF (figs. 8 and 9).

b. Remove the power cord connector plug from the power receptacle.

c. Remove the 10 screws that secure the cover to the front wall and lift off the cover.

d. Replace the cover by following the procedures in *a* through *c* above in reversed order.

48. Removal and Replacement of LS–147D/FI

a. Operate the OFF-SEND switch to OFF.

b. Remove the power cord connector plug from the INTERCOM receptacle in the power duct (fig. 8).

c. Remove the signal cord plug from the INTERCOM jack (fig. 8).

d. Loosen the captive wingnuts and pull the LS–147D/FI forward. Disconnect the telephone cord from the binding posts on the rear of the LS–147D/FI.

e. Lift and remove the unit from its mounting bracket.

f. Replace the LS–147D/FI by following the procedures in *a* through *e* above in reversed order.

49. Removal and Replacement of TA–312/PT

(fig. 27)

a. Remove the prepared leads from the TA–312/PT binding posts.

b. Loosen the wingnut on the side of the mounting bracket and rotate the clamping arm upward.

c. Remove the flathead screw on the side of the mounting bracket.

d. Lift the TA–312/PT out of the mounting bracket and remove the holding plate from the buzzer recess on the side of the TA–312/PT.

e. Remove the replacement TA–312/PT from its carrying case and insert the holding plate into the the buzzer recess.

f. Place the TA–312/PT in its mounting bracket. Replace and tighten the flathead screw.

g. Position the clamping arm and tighten the wingnut.

h. Connect the prepared leads of the telephone cord to the TA–312/PT binding posts.

50. Removal and Replacement of TH–5/TG or TA–182/U

a. Remove the appropriate power cord connector plug from its receptacle and remove the wires from the binding posts on the unit.

b. Loosen the quick-release screws on the front panel.

c. Pull the chassis forward and lift it from its rack.

d. Replace the unit by following the procedures in *a* through *c* above in reversed order.

51. Removal and Replacement of TT–4A/TG

a. Operate the TT–4A/TG MOTOR switch and LIGHT switch to OFF (TM 11–5815–206–12).

b. Remove the connecting cords and the powe cord connector plug from their receptacles.

c. Loosen the web strap across the top of the dus cover and remove the dust cover.

d. Remove the teletypewriter connecting cord from the binding posts on the TT–4A/TG. Replac the dust cover.

e. Loosen the four wingnuts beneath the tabletop Remove the retaining bars and lift the TT–4A/TG from the tabletop.

f. Remove and store the immersion proof cover o the replacement TT–4A/TG (if applicable). Instal the TT–4A/TG by following the procedures give in *a* through *e* above in reversed order.

52. Removal and Replacement of SB–86/ Components

a. TA–207/P.

(1) Remove the connecting leads from the TA 207/P (pars. 16*b* and *c*).

(2) Remove the top framework bar in th traffic panel assemblies (fig. 14).

(3) Release the trunk latches which secure th TA–207/P in place and remove the TA 207/P.

(4) Replace the TA–207/P by following th procedures in (1) through (3) above i reversed order.

b. SB–248/P.

(1) Remove the appropriate TA–207/P (above).

(2) Remove the wingnuts beneath the tableto and remove the retaining bars.

(3) Lift the SB–248/P from the tabletop.

(4) Replace the SB–248/P by following th procedures in (1) through (3) above i reversed order.

c. PP–990/G.

(1) Remove the power cords from the PP–990 G binding posts (TM 11–2134).

(2) Remove the two lock rods that secure th PP–990/G to the floor of the shelter.

(3) Lift the PP–990/G from the floor and r move the batteries.

(4) Replace the PP–990/G by following th procedures in (1) through (3) above reversed order.

Note. The maintenance allocation chart (app. II) indi-es the maintenance functions and tools authorized for each intenance echelon.

3. Troubleshooting Information

a. Procedures for localizing troubles within the N/MGC–9 are given in the equipment performance ecklist (par. 43).

b. Procedures for troubleshooting components, rts, and wiring of the S–190/MGC–9 are given in ragraph 54.

c. Procedures for troubleshooting major com-nents of the AN/MGC–9 are given in appropriate chnical manuals (app. I). Refer to paragraphs 49 rough 52 for removal and replacement of major mponents.

4. Troubleshooting and Repair Procedures

***Warning:* Be extremely careful when perform-troubleshooting procedures; dangerous voltages e present in the equipment.**

Isolate defective components, parts, or wiring of e S–190/MGC–9 by making appropriate voltage, istance, or continuity tests with Multimeter N/URM–105 or, when practical, isolate trouble signal circuits by monitoring. Use figure 38 when lating trouble in the power circuits; figure 39, for nal circuits. Repair or replace components, rts, or wiring. Use the chart below for references repair procedures.

Part or component	Reference	
	Paragraph	Figure
meter	55*d*	20 and 33
cuit breaker switches No. 1 through 6	55*b*	20 and 33
rrent transformer	55*c*	20 and 33
or microswitch	58*b*	
ctric heater	56	34 and 41
haust blower	57	35 and 42
orescent light fixture	59	40
ercommunication Station LS–147D/FI	55*b*	46
AIN circuit breaker switch	55*b*	20 and 33
ver duct switches	58*a*	
lter	62	
otlight	60	
ggle switches:		
TA–182/U switchbox	58*c*	43
TT–4A/TG AND TH–5/TG switch panel.	58*c*	44
pair receptacle	61	36 and 37

55. Power Distribution Panel Repairs

(fig. 33)

a. Preliminary Procedure. Operate the MAIN circuit breaker switch to OFF and disconnect the ac power cable at the power and signal entrance box (fig. 16). Remove the four screws which secure the power distribution panel cover and remove the cover.

b. Removal and Replacement of Circuit Breaker Switch.

(1) Grasp the defective circuit break and pull it straight out from the panel.
(2) Tag and disconnect the wires connected to the circuit breaker.
(3) Connect the wires ((2) above)to the replacement circuit breaker and firmly press it back into the panel.

c. Removal and Replacement of Current Transformer.

(1) Remove the four screws that hold the meter panel to the power distribution panel.
(2) Tag and disconnect the current transformer leads from the ammeter.
(3) Remove the two bolts that secure the current transformer inside the panel and remove the current transformer.

Note. Count the number of turns of heavy black wire around the current transformer before proceeding with the next step.

(4) Disconnect the black wire around the current transformer from the MAIN circuit breaker switch and carefully unwind the wire from the current transformer.
(5) Wind the black wire around the replacement transformer.

***Caution:* Be sure the number of turns is the same as on the original transformer. Reconnect the black wire to the MAIN circuit breaker switch (fig. 33).**

(6) Position the replacement transformer inside the panel and replace and tighten the bolts.
(7) Connect the transformer leads to the ammeter (fig. 33).
(8) Replace the meter panel and tigthen the screws.

d. Removal and Replacement of Meter.

(1) Remove the bolts that hold the meter to the meter panel and lift out the meter.

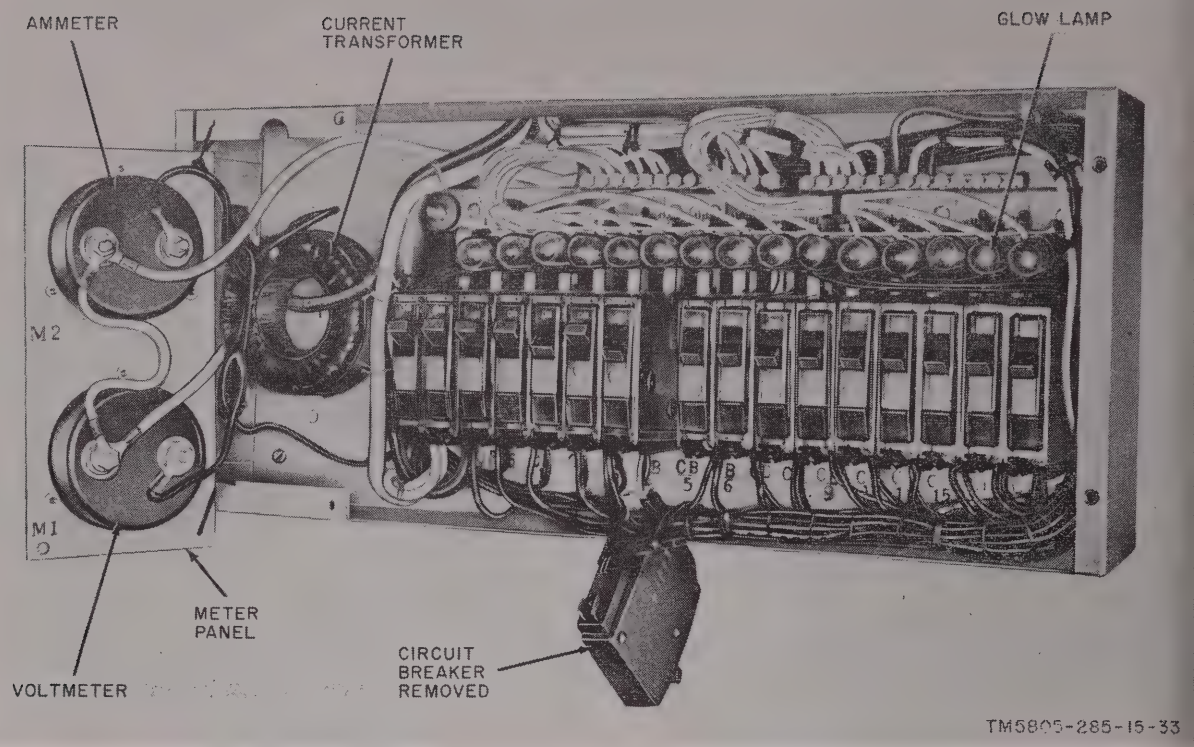


Figure 33. Typical power distribution panel, cover removed, identification of parts.

(2) Tag and disconnect the leads from the meter terminals.
(3) Connect the leads to the replacements meter (fig. 33).
(4) Position the meter in the panel and tighten the bolts.

56. Electric Heater Repairs

(fig. 34)

a. Preliminary Procedures. Before performing the repair procedures in *b* through *g* below, remove the heater from its mounting base (par. 46) and remove the backplate and bottom plate as follows:

(1) Remove the four screws that secure the bottom plate to the heater.
(2) Remove the two screws that secure the backplate to the bottom plate, and remove the bottom plate.
(3) Loosen the power cord clamp on the backplate.
(4) Remove the four screws that secure the backplate to the heater and remove the backplate.

b. Removal and Replacement of Power Cord.

(1) Loosen the screws that secure the power cord leads to the terminal board.
(2) Pull the power cord out of the clamp in th backplate.
(3) Insert a new cord through the clamp on th backplate.
(4) Connect the leads to the terminal boar (fig. 41).

c. Removal and Replacement of Temperature Contro Unit.

(1) Loosen the screws that connect the tw wires to the temperature control unit.
(2) Remove the two screws that secure th unit to the cabinet and remove the unit.
(3) Insert the TEMPERATURE CONTRO switch on the replacement unit through th slot in the cabinet. Replace and tighte the screws.
(4) Connect the two wires to the temperatur control unit.

d. Removal and Replacement of HEAT-OFF-FA Switch.

(1) Unsolder the three wires and strap con nected to the switch.
(2) Remove the ringnut that secures the switch through the top of the cabinet and remov the switch.

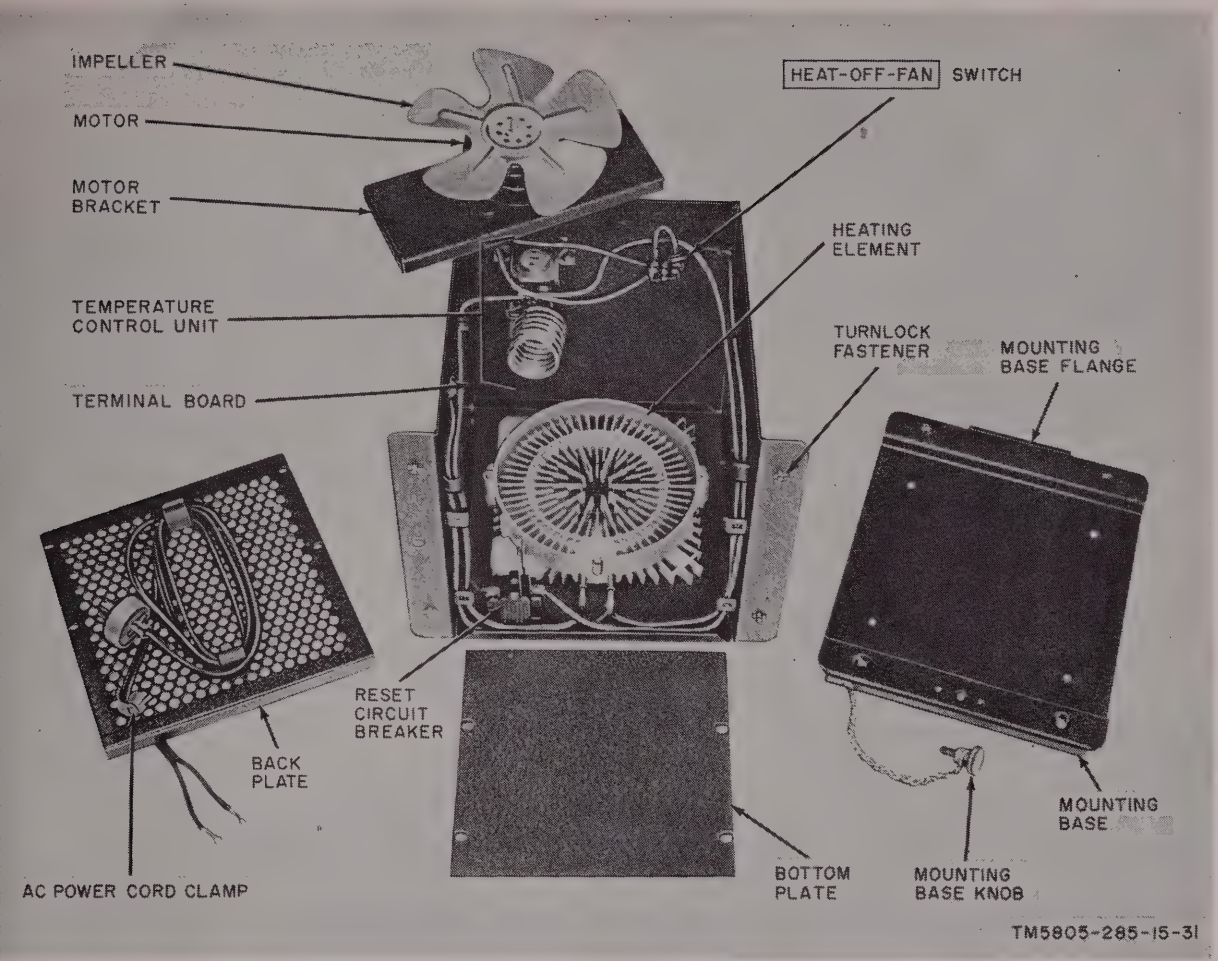


Figure 34. Electric heater, rear view, identification of parts.

(3) Solder the strap and the three wires to the replacement switch.
(4) Position the switch and tighten the ringnut.

. *Removal and Replacement of Reset Circuit aker.*

(1) Loosen the screws that connect the two wires to the circuit breaker. Loosen the bolt that secures the bare copper wire to the heating element.
(2) Remove the two screws that fasten the circuit breaker to the cabinet and remove the circuit breaker.
(3) Connect the two insulated wires to the replacement circuit break. Connect the bare copper wire to the heating element.

Caution: **Do not alter the shape or length of the bare copper wire.**

(4) Position the circuit breaker and replace and tighten the screws.

f. Removal and Replacement of Motor and Impeller.

(1) Remove the four screws which secure the motor bracket to the cabinet and lift out the motor and bracket.
(2) Disconnect the motor leads at the HEAT-OFF-FAN switch and at the taped splice in the heating element cable.
(3) Remove the three screws which secure the motor to the bracket.
(4) Unscrew the metal fastener which secures the impeller to the motor shaft and remove the impeller.
(5) Position and secure a replacement motor in the bracket. Slide the impeller onto the motor shaft and tighten the fastener.
(6) Replace the motor bracket in the cabinet and connect the motor leads ((2) above).

g. Removal and Replacement of Heating Element.

(1) Remove the four screws which secure the motor bracket to the cabinet. Remove the motor bracket.

(2) Loosen the bolt that secures the bare copper wire from the circuit breaker to the heating element and remove the wire.

Caution: **Be extremely careful when removing this lead. Do not alter the length or shape of the bare copper wire.**

(3) Remove the wire connections from the plug-in terminals on the heating element.
(4) Remove the screws that secure the heating element to the cabinet. Be careful not to bend the louvers on the front of the cabinet during the removal procedure.
(5) Position the replacement element and replace and tighten the screws.
(6) Connect the wires to the plug-in terminals of the heating element.
(7) Replace the bare wire connected from the circuit breaker ((2) above).
(8) Position the motor bracket in the cabinet and replace and tighten the screws.

57. Exhaust Blower Repairs
(fig. 35)

a. Preliminary Procedures. Before performing the repair procedures in *b* through *d* below, remove the exhaust blower cover (par. 47) and remove the power cord connector plug from its receptacle.

b. Removal and Replacement of Capacitor.
(1) Loosen the capacitor clamp screw.
(2) Remove the power cord clamp from the motor bracket.
(3) Slide the capacitor out of the clamp.
(4) Disconnect the motor leads and the power cord from the capacitor terminals.
(5) Connect the motor leads and the power cord to the replacement capacitor (fig. 42).
(6) Slide the capacitor into the clamp and tighten the screw.
(7) Replace the power cord clamp.

c. Removal and Replacement of Power Cord.
(1) Remove the capacitor from the clamp (*b*(2)–(4) above).
(2) Disconnect the power cord leads from the capacitor and motor leads.
(3) Connect the new power cord to the capacitor and motor leads (fig. 42).
(4) Slide the capacitor into the clamp and tighten the screw.
(5) Replace the power cord clamp.

d. Removal and Replacement of Motor and Impeller.
(5) Remove the two screws from the bottom edge of the plate that hold the exhaust blower to the front wall.
(2) Lift the exhaust blower away from the wall.

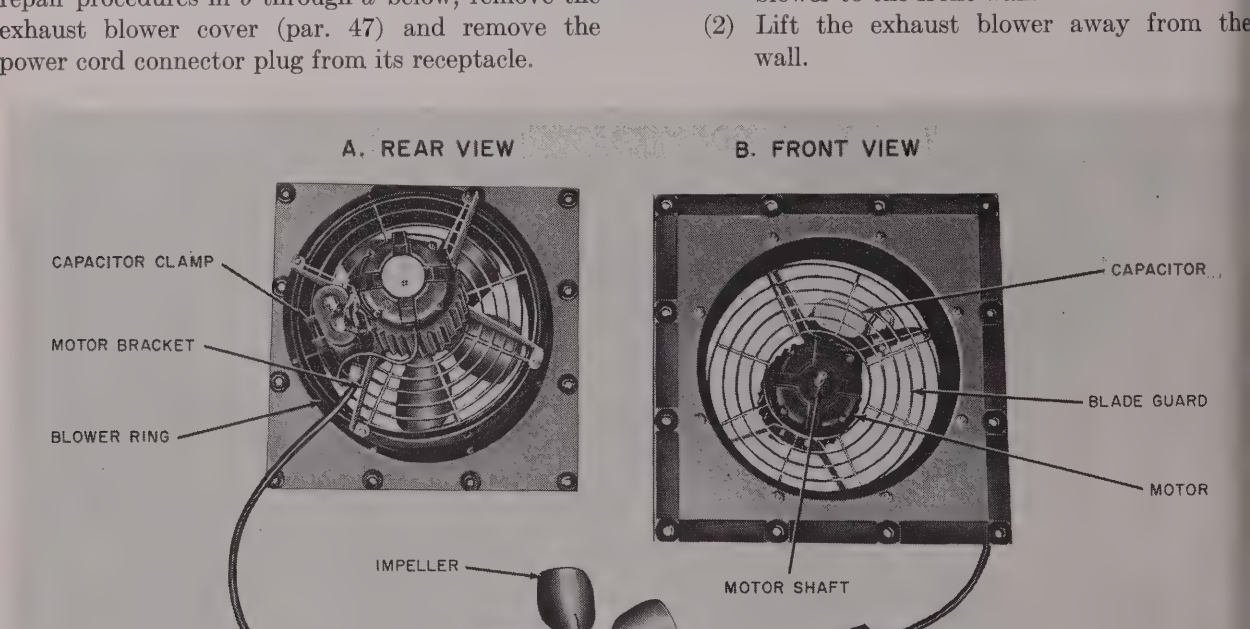


Figure 35. Exhaust blower, identification of parts.

(3) Remove the four bolts that secure the blade guard and motor brackets to blower ring.
(4) Disconnect the motor leads from the capacitor and power cord.
(5) Remove the power cord clamp.
(6) Remove the four screws that secure the motor mounting bracket to the motor.
(7) Loosen the two Allen-head setscrews that that secure the impeller to the motor shaft and remove the impeller.
(8) Slide the impeller (setscrews toward the motor) onto the shaft of the new motor and tighten the setscrews.
(9) Secure the motor bracket to the new motor.
(10) Connect the motor leads to the capacitor and power cord (fig, 42).
(11) Replace the power cord clamp.
(12) Position the motor bracket and blade guard on the blower ring.
(13) Replace and tighten the bolts that secure the motor bracket and blade guard to the blower.
(14) Replace the exhaust blower by reversing the procedures in (1) and (2) above.
(15) Replace the exhaust blower cover (par. 47).

Removal and Replacement of Switches

Power Duct Switches.
(1) Operate the associated circuit breaker switch to the OFF position (fig. 20).
(2) Remove the screws from the brackets at end of the switch. Remove the two brackets and the switchplate.
(3) Remove the switch mounting screws and and the switch.
(4) Tag and remove the wires from the switch and connect them to the replacement switch.
(5) Replace the switch by following the procedures in (1) through (4) above in reversed order.

Door Microswitch.
(1) Disconnect the ac power supply from the AN/MGC–9.
(2) Carefully pry off the power duct cover between the POWER INDICATOR NEON LAMP and LIGHT 1 switch.
(3) Tag and remove the wires from the NO and C terminals of the switch.
(4) Unscrew the ringnut from the door side of the switch, and remove the switch.
(5) Replace the switch by following the procedures in (1) through (4) above in reversed order.

c. Toggle Switches.
(1) *TA–182/U switchbox.*
(*a*) Operate circuit breaker switch No. 5 to OFF.
(*b*) Remove the light holding screws from the front panel and remove the panel.
(*c*) Remove the hexagonal nut and remove the switch.
(*d*) Tag and remove the wires from the switch.
(*e*) Connect the wires to the replacement switch (fig. 43).
(*f*) Replace the switch by following the procedures in (*b*) and (*c*) above in reversed order.
(2) *TT–4A/TG AND TH–5/TG switch panel.*
(*a*) Operate circuit breaker switch No. 6 to OFF.
(*b*) Remove the holding screws from the front of the switch panel and remove the switch panel.
(*c*) Remove the hexagonal nut and remove the switch.
(*d*) Tag and remove the wires from the switch.
(*e*) Connect the wires to the replacement switch (fig. 44).
(*f*) Replace the switch by following the procedures in (*b*) through (*e*) above in reversed order.

59. Removal and Replacement of Fluorescent Light Fixture Components

Note. The fluorescent light fixtures are fabricated as part of the ceiling power duct. The radio frequency (rf) filters are sealed units; they are not repairable and are replaced as a complete unit.

a. Operate the associated LIGHT switch to OFF; remove the light shield and the fluorescent lamp (par. 45).

b. Carefully pry off the associated power duct cover.

c. Tag and disconnect the wires from the defective component (fig, 40) and remove the defective component from the power duct.

d. Secure the replacement component in the power duct.

e. Connect the wires to the replacement component.

f. Replace the cover on the power duct.

g. Replace the fluorescent lamp and light shield (par. 45).

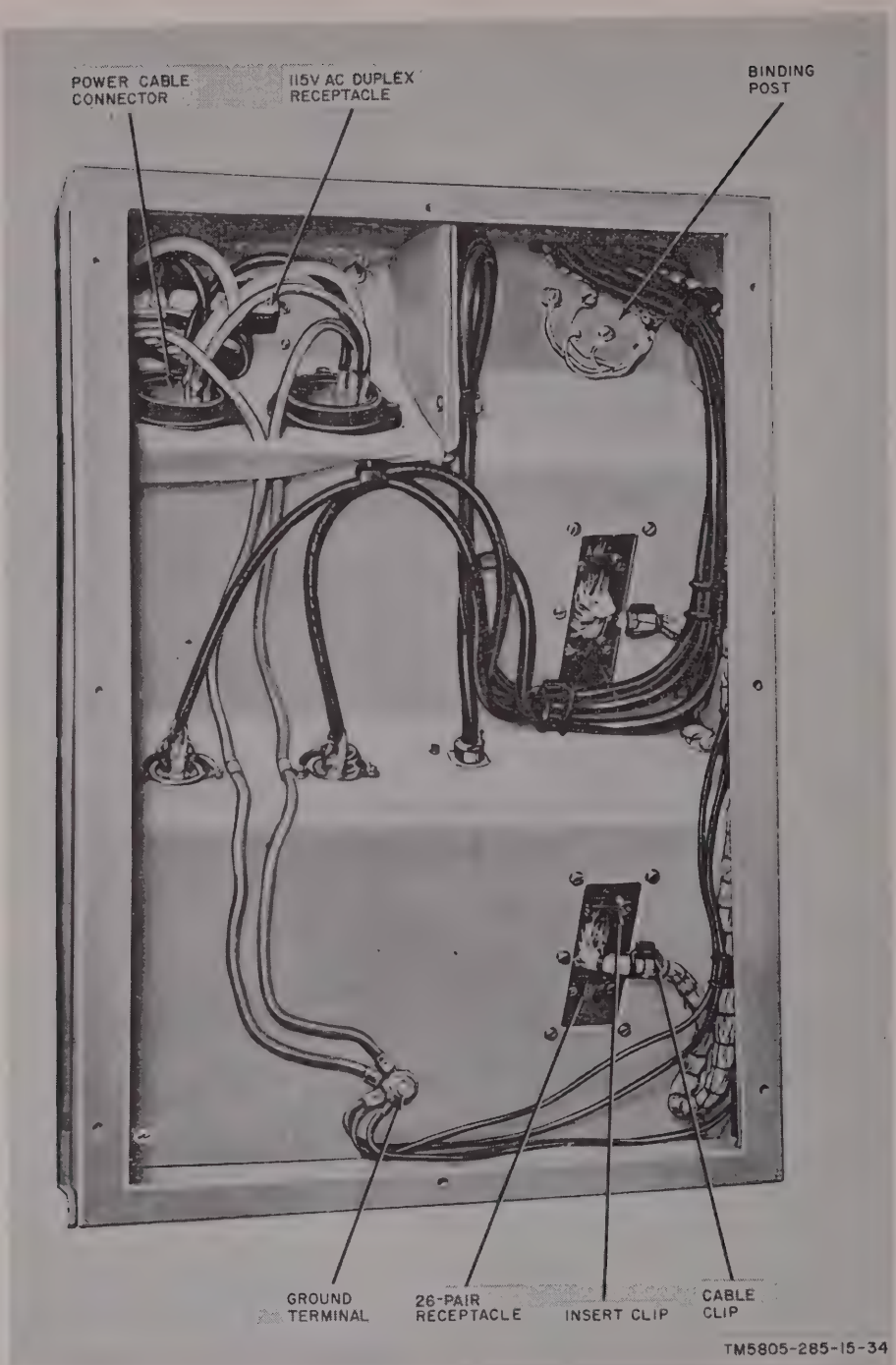


Figure 36. Typical power and signal entrance box, rear view, identification of parts.

60. Removal and Replacement of Spotlight

(fig. 38)

Warning: **Operate the LIGHTS circuit breaker switch to OFF and use the hand lantern or droplight during replacement or repair of the spotlight.**

a. Operate the spotlight switch to OFF.

b. Remove the incandescent lamp from the spotlight.

c. Remove the screws that secure the lamp sock in the spotlight assembly and disconnect the sock wiring.

d. Disconnect and remove the spotlight switch.

e. Remove the screws that secure the spotlig assembly to the power duct.

f. Replace the spotlight by following the pr cedures in *b* through *e* above in reversed order.

. Removal and Replacement of 26-Pair Receptacle

a. Removal.

(1) Remove the screws that secure the power ENTRANCE PANEL cover (fig. 36) and remove the cover.

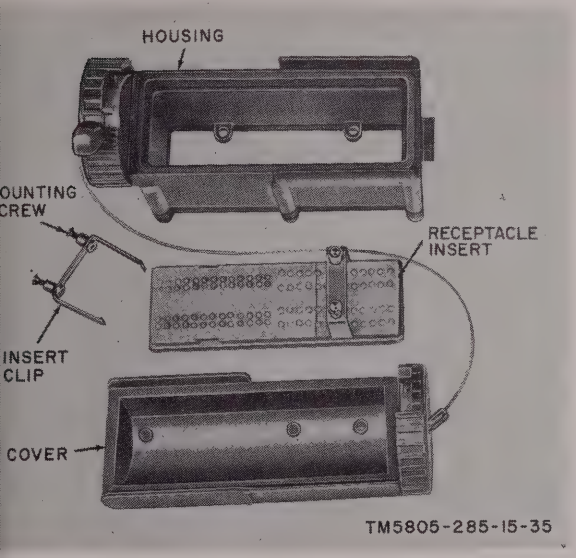
(2) Remove the screws that secure the insert clips (fig. 37).

(3) Unfasten the cable clip nearest the 26-pair receptacle mounting.

(4) At the entrance panel remove the 26-pair receptacle cover (par. 31*a*).

(5) Lift the receptacle insert (fig. 37) from the front of the 26-pair receptacle housing.

(6) Tag and unsolder the wires from the receptacle insert.



ure 37. 26-pair cable receptacle, identification of parts.

. Replacement.

(1) Connect the cable wires to the replacement receptacle insert (fig. 45).

Caution: **Be extremely careful when connecting and soldering wires. Excessive heat or pressure will damage the insert.**

(2) Carefully place the insert in the 26-pair receptacle housing (fig. 37).

Caution: **Be careful not to damage the wires when replacing screws or when taking up slack in the 26-pair cable.**

(3) Replace the screws that secure the insert clip to the 26-pair receptacle housing.

(4) Secure the cable from under the cable clip.

(5) Replace the power entrance panel cover and tighten the screws.

(6) Replace the connector cover (par. 31*a*).

62. Shelter Repairs

a. The manitenance or repair of the S–190/MGC–9 racks, frames, brackets, and assorted hardware is accomplished by removing and replacing screws or bolts. When any exterior component of the shelter is replaced, be sure that the gasket is adequately sealed to the shelter to prevent leakage. The responsibilities for shelter maintenance are listed in the maintenance allocation chart (app. II).

b. The exterior skin of the shelter is susceptible to puncturing or gouging during the loading and transportation procedures. Use patch kit, shelter, Electrical equipment (FSN 5410–783–6250) to repair the roof or sides of the shelter as described in the instructions provided with the patch kit and given below.

(1) Use emery cloth, sandpaper, a knife, or scraper and remove all paint or foreign matter within a 3-inch radius around the hole to be patched. Do not touch the cleaned area with hands or dirty rags.

(2) If the insulation has been gouged out, fill the hole with clean noncombustible material, if possible. *Do not use the glass cloth* for this purpose.

(3) Cut out a piece of glass cloth that will extend 2 inches beyond the edges of the hole repaired.

Warning: **Resin No. 797 and curing agent No. 237 are harmful to the skin. Wash thoroughly with water any area of the body that may have come in contact with the liquid resin or curing agent.**

(4) Pour 3 ounces of resin No. 797 for each square foot of surface area to be covered into the mixing cup provided. Shake the can thoroughly before pouring the resin. Temperature and climate will determine the quantity of curing agent and cold weather promoter to be added to the resin. Use the eye dropper provided and prepare the mixture as follows:

(*a*) For temperatures above 55° F., fill the eye dropper to the red line with curing agent No. 237. Add the curing agent to the resin and mix thoroughly.

(*b*) For temperatures between 20° and 55° F., fill the eye dropper to the red line with curing agent No. 237. Fill the eye

dropper to the half-way mark with cold weather promoter No. 347. Add the cold weather promoter to the combined curing agent and resin and mix thoroughly.

(*c*) For temperature below 20° F., fill the eye dropper to the red line with curing agent No. 237; add the curing agent to the resin and mix thoroughly. Fill the eye dropper to the red line with cold weather promoter No. 347. Add the cold weather promoter to the combined curing agent and resin and mix thoroughly.

(5) Use the spatula (or the brush in hard-to-reach areas or when the temperature is above 55° F.) and spread a liberal coating of the prepared mixture over the surface to be patched. Place the glass cloth ((3) above) over the coating and press it lightly with the applicator. Spread a second liberal coating of the mixture over the glass cloth; work from the center of the patch towards the edges.

(6) Examine the patch to see that the edges ar flat and firmly embedded in the mixture Be sure that the patch is completely cov ered by the mixture. Prepare and appl an additional mixture, if necessary.

Note. To accelerate low temperature curin heat the patch with warm, dry air or radiant hea *Do not use an open flame.*

(7) Depending on the temperature and dryin conditions, the patched surface may b sanded and painted within 4 to 24 hour after application. After the mixture in th cup and on the spatual has hardened, fle the cup and the spatula to crack the mix ture. Clean the cup and spatula and stor them for future use. Discard the use brush recap and store the containers.

Caution: **Shelf-life is severly limite by heat; recap the containers tightly an store them in a cool dry place.**

CHAPTER 5

THEORY

3. General

a. The AN/MGC–9 provides facilities for switch-ıg 120 teletypewriter, 120 telephone, or a combi-ation of both type circuits. Two SB–86/P's are ar-ınged to provide a two-position switchboard with) circuits at each position. Each operator is pro-ided with a TA–312/PT, a TT–4A/TG, and a 'H–5/TG to permit answering and monitoring vf eletypewriter or telephone line circuits.

b. All power and signal connections are made to ıe outside of the shelter. The binding posts in inding post signal entrance boxes A and B are con-ected in parallel with the 26-pair cable receptacles ı the power and signal entrance box and in the con-ector signal entrance box.

c. Ac power within the shelter is controlled and istributed at the power distribution panel.

4. Signal Circuits

a. Teletypewriter Signals.

(1) Incoming and outgoing teletypewriter signals are applied either through the SIGNAL 1 through 5 26-pair receptacles (pairs 1–22 of each) or the associated binding posts (par. 14). The signals are then applied to the TA–207/P's of the SB–86/P's as appropriate and also, through the operator's emergency binding posts on the SB–86/P's, to the TH–5/TG's.

(2) Incoming signals are applied through the appropriate TH–5/TG to the printer of the associated TT–4A/TG; outgoing signals from the keyboard of the TT–4A/TG are applied through the TH–5/TG to the associated SB–86/P.

(3) Pairs 23 and 24 of SIGNAL 1 are connected as in (1) and (2) above.

(4) Pairs 23 and 24 of SIGNAL 2 through 5 are connected through patch panel jacks to jacks 23 and 24, respectively, on the SB–86/P's. However, when patch cords are used to connect a TA–182/U into a circuit, the circuits for pairs 23 and 24 of SIGNAL 2 through 5 are arranged as follows:

(*a*) Pair 23 of SIGNAL 2 is disconnected from jack 23 on the SB–86/P. Jack 23 of the SB–86/P is connected through the SB–86/P 1 LOWER TA–207/P LINE 23 cutoff jack in the patch panel to the LOOP binding posts (5 and 6) of TA–182/U No. 1.

(*b*) Pair 24 of SIGNAL 2 is disconnected from jack 24 on the SB–86/P and is connected through the SB–86/P 1 LOWER TA–207/P LINE 24 cutoff jack in the patch panel to the LINE binding posts (1 and 2) of TA–182/U No. 1.

(*c*) Pairs 23 and 24 SIGNAL 3 through 5 are connected to TA–182/U No. 2 through 4, respectively, through the appropriate patch panel jacks as in (*a*) and (*b*) above.

b. Telephone Signals, POSITIONS NO. 1 and 2. Incoming and outgoing telephone signals at POSITIONS NO. 1 and 2 are applied as described in *a*(1) through (3) above. Telephone calls can be originated or answered by using the TA–312/PT which is connected to the TH–5/TG.

c. Spare Line Circuits. Spare line circuits are available at SPARE binding post pairs 3 and 4 in the power and signal entrance box, which are connected to SPARE jacks J11 and J23 on the patch panel. Each SPARE jack has a binding post pair connected in parallel.

d. Intershelter Communication Circuits.

(1) *TA–312/PT.* The PHONE binding post pair No. 1 in the power and signal entrance box, pair 25 of any 26-pair receptacle, and binding post pair 25 of SIGNAL 2 through 5 are all available for connecting the intershelter TA–312/PT circuit. The TA–312/

PT circuit terminates at the TA–312/PT through the telephone cord connected to the PHONE jack in the signal duct.

(2) *LS–147D/FI.* The INTERCOM binding post pair No. 2 in the power entrance box, pair 26 of any 26-pair receptacle, and binding post pair 26 of SIGNAL 2 through 5 are all available for connecting the intershelter LS–147D/FI circuit. The LS–147D/FI circuit terminates at the LS–147D/FI through the telephone cord connected at the INTERCOM jack in the signal duct.

65. Ac Power Circuits

(fig. 38)

Note. The function of each switch and indicator in the AN/MGC–9 is covered in paragraph 28.

a. Ac Power Distribution.

(1) Ac power is applied to the AN/MGC–9 through IN POWER 115 v AC receptacle J1 in the power and signal entrance box (par. 27). Parallel-connected OUT POWER 115 v AC receptacle J2 is provided so that another area assemblage may be connected to the AN/MGC–9 power source, if the rating of the power source is not exceeded.

(2) Ac power from receptacle J1 is applied through the power duct wiring to MAIN circuit breaker switch CB7 in the power distribution panel. Circuit breaker switches CB1 through CB6 (parallel-connected) are connected in series with CB7. Wiring to the equipment and convenience receptacles is distributed through the power duct from circuit breaker switches CB1 through CB6. Lamp DS7 is connected across the ac input lines to CB7 and lights when power is applied to the AN/MGC–9. Lamps DS1 through DS6 are connected across the circuits controlled by CB1 through CB6, respectively, and light individually as each circuit breaker switch is operated to ON.

b. Grounding. The AN/MGC–9 is grounded (par. 26) to reduce electrical shock hazards. Ground terminals for the AN/MGC–9 components are provided adjacent to each ac power receptacle inside the S–190/MGC–9.

c. Voltmeter and Ammeter.

(1) Voltmeter M1 is connected across the ac input circuit after MAIN circuit breaker switch CB7. It indicates the voltage applied from the power source to the AN/MGC–9.

(2) Ammeter M2 is connected to the ac input circuit through current transformer T1. It indicates the total current being drawn by the operating components of the AN/MGC–9.

CHAPTER 6
SHIPMENT AND LIMITED STORAGE AND DEMOLITION

Section I. SHIPMENT AND LIMITED STORAGE

6. Disassembly of Equipment

Perform the following procedures when the N/MGC–9 is moved to a different location or aced in storage.

a. Operate all ac power switches and circuit eaker switches to OFF except the LIGHT 1 and GHT 2 switches, circuit breaker switch 1 LIGHTS, d the MAIN circuit breaker switch.

b. Remove the batteries from the SB 86/P, A–312/PT, AN/URM–105, and hand lantern for olonged storage or long-distance shipment.

c. Secure all components in their shelter cases, cks, mountings, or holders.

d. Remove and store all patch cords. Place all scellaneous items in the storage drawers and ure the drawers and cabinets for transit.

e. Disconnect the field wires from the PHONE d INTERCOM binding posts in the power and nal entrance box (fig. 16).

f. Disconnect the 26-pair cables from the entrance xes and replace the covers on the receptacles.

Note. The 26-pair cable is stored in the shelter from ich it came.

g. Disconnect the field wires from the binding sts in binding post signal entrance boxes A and B gs. 17–19) as appropriate. Close and secure the vers.

h. Operate the LIGHT 1 and LIGHT 2 switches, cuit breaker switch 1 LIGHTS, and the MAIN cuit breaker switch to OFF.

i. If power was obtained from the PU–294/G, oceed as follows:

(1) Stop the PU–286/G (TM 11–940A).
(2) Disconnect the power cable connector from the PU–294/G power cable stub connector. Replace the connector cover.
(3) Disconnect the power cable stub from the terminals of the PU–286/G and store it in a drawer.

j. If power was obtained from a commercial source, proceed as follows:

(1) Turn off or disconnect the power.
(2) Disconnect the power cable connector from the power cable stub connector. Replace both connector covers.
(3) Disconnect the power cable stub from the commercial source and store it in its storage drawer.

k. Disconnect the power cable from the IN POWER 115 v AC receptacle in the power and signal entrance box and replace the covers on the receptacles.

l. Disconnect the ground straps from the GROUND TERMINAL in the power and signal entrance box, and the GND terminal on the PU–286/G. Close and secure the cover on the entrance box.

m. Store the ground straps in a storage drawer.

n. Close and secure the covers on the exhaust blower vents and on the air filter.

o. Remove the ground rods and secure them in the S–190/MGC–9 (fig. 11).

p. Wind the power cable and the signal cables on the cable reels and secure the reels to the floor of the shelter (fig. 12).

q. Recheck the area for loose items. Be sure that all items are properly stored in the shelter and in the PU–294/G.

r. Clean the shelter thoroughly and check to see that the drain plug is firmly in place.

s. Close and lock the shelter door.

67. Transportation

AN/MGC–9 can be transported by truck or by helicopter. Refer to paragraph 25 for lifting, loading, and unloading instructions.

Caution: **When transporting the AN/MGC–9 by air, the outside vent covers of the shelter must be opened to equalize the pressure inside and outside the shelter.**

Section II. DEMOLITION OF MATERIEL TO PREVENT ENEMY USE

68. Authority for Demolition

Demolition of the equipment will be accomplished only upon the order of the commander. The destruction procedures outlined in paragraph 69 will be used to prevent further use of the equipment.

69. Methods of Destruction

Use any or all of the following methods to destroy the equipment.

a. Smash. Smash the controls, tubes, coils, relays, switches, capacitors, transformers, and meters; use sledges, axes, handaxes, pickaxes, hammers, or crowbars.

b. Cut. Cut all cables and cords and slash the wiring on the components; use axes, handaxes, or machetes.

c. Burn. Burn cords and technical manuals; use gasoline, kerosene, oil, flamethrowers, or incendiary grenades.

d. Bend. Bend panels and cabinets.

e. Explode. If explosives are necessary, use fire arms, grenades, or TNT.

f. Dispose. Bury or scatter the destroyed parts in slit trenches or foxholes, or throw them into streams.

APPENDIX I
REFERENCES

320–5	Dictionary of United States Army Terms
320–50	Authorized Abbreviations and Brevity Codes
700–38	Unsatisfactory Equipment Reports (Reports Control Symbol CSG1D–247(R2))
Pam 108–1	Index of Army Motion Pictures, Film Strips, Slides, and Phono Recordings.
Pam 310–4	Military Publications: Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
Pam 310–21	Military Publications: Index of Supply Manuals; Signal Corps
21–5	Military Training
21–6	Techniques of Military Instruction
21–30	Military Symbols
11–940A	Gasoline Engine Generator Sets PU–286/G and PU–286A/G
11–2134	Manual Telephone Switchboard SB–86/P, Installation and Operation
11–2138	Terminal Box TA–125/GT, Telephone Repeating Coil Assembly TA–145/GT, Maintenance Kit MX–842/GT; and Switchboard Signal TA–123/GT.
11–2155	Telephone Set TA–312/PT
11–4134	Manual Telephone Switchboard SB–86/P, Field Maintenance
11–5805–201–12P	Operator and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Telephone Set TA–312/PT.
11–5805–201–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Telephone Set TA–312/PT.
11–5805–204–15	Communications Patching Panel SB–611/MRC, Operation, Organizational, Field, and Depot Maintenance.
11–5805–246–10	Operator's Manual: Terminal, Telegraph TH 5/TG
11–5805–246–12P	Operator's and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart for Terminal, Telegraph TH–5/TG.
11–5805–246–20	Organizational Maintenance Manual: Terminal, Telegraph TH–5/TG
11–5805–246–35	Field and Depot Maintenance Manual, Terminal, Telegraph TH–5/TG
11–5805–246–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Terminal, Telegraph TH–5/TG.
11–5805–247–10	Operator's Manual, Converter, Telegraph-Telephone Signal TA–182/U
11–5805–247–12P	Operator's and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart for Converter, Telegraph-Telephone Signal TA–182/U.
11–5805–247–20	Organizational Maintenance Manual: Converter, Telegraph-Telephone Signal TA–182/U.
11–5805–247–35	Field and Depot Maintenance Manual; Converter, Telegraph-Telephone Signal TA–182/U.
11–5805–247–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Converter, Telegraph-Telephone Signal TA–182/U.
11–5805–257–12P	Operator's and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Generators, Ringing Hand G–42/PT and G–42A/PT.

TM 11–5815–206–12	Operation and Organizational Maintenance: Teletypewriter Set AN/PGC–1 and Teletypewriters TT–4A/TG and TT–4B/TG.
TM 11–5830–221–12	Operator's and Organizational Maintenance Manual: Intercommunication Station LS–147B/FI.
TM 11–5935–204–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Connector, Plug, Electrical U–185A/G.
TM 11–5935–205–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Connector, Receptacle, Electrical U–187/G.
TM 11–5965–224–12P	Operator and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Handsets H–60/PT and H–165/U.
TM 11–5965–233–12P	Operator and Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Headset-Microphones H–91/U and H–91A/U.
TM 11–6115–202–20P	Organizational Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Generator Set, Gasoline Engine PU–286/G and Power Unit PE–197.
TM 11–6115–202–35P	Field and Depot Maintenance Repair Parts and Special Tools List: Generator Set, Gasoline Engine PU–286/G and Power Unit PE–197.
TM 11–6115–204–20	Organizational Maintenance Manual: Generator Sets, Gasoline Engine PU–286A/G and PU–286B/G.
TM 11–6115–223–15P	Operator, Organizational, Field and Depot Maintenance Repair Parts and Special Tools List and Maintenance Allocation Chart: Generator Set, Gasoline Engine, Trailer Mounted PU–294/G.
TM 11–6625–203–12	Operation and Organizational Maintenance: Multimeter AN/URM–105 including Multimeter ME–77/U.
TM 11–6625–203–35	Field and Depot Maintenance: Multimeter AN/URM–105 including Multimeter ME–77/U.
TM 11–6625–203–12P	Operator's and Organizational Maintenance Repair Parts and Special Tools List for Multimeter AN/URM–105.
TM 11–6625–203–35P	Field and Depot Maintenance Repair Parts and Special Tools List, Multimeter AN/URM–105.

APPENDIX II

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

General

a. This appendix assigns maintenance functions ıd repair operations to be performed by the lowest ›propriate maintenance echelon.

b. Columns in the maintenance allocation chart e as follow:

(1) *Part or component.* This column shows only the nomenclature or standard item name. Additional descriptive data are included only where clarification is necessary to identify the part. Components and parts comprising a major end item are listed alphabetically. Assemblies and subassemblies are in alphabetical sequence with their components listed alphabetically immediately below the assembly listing.

(2) *Maintenance function.* This column indicates the various maintenance functions allocated to the echelon capable of performing the operations.

(*a*) *Service.* To clean, to preserve, and to replenish fuel and lubricants.

(*b*) *Inspect.* To verify serviceability and to detect incipient electrical or mechanical failure by scrutiny.

(*c*) *Test.* To verify serviceability and to detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, etc.

(*d*) *Replace.* To substitute serviceable assemblies, subassemblies and parts for unserviceable components.

(*e*) *Rebuild.* To restore an item to a standard as near as possible to original or new condition in appearance, performance, and life expectancy. This is accomplished through the maintenance technique of complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements using original manufacturing tolerances and/or specifications and subsequent reassembly of the item.

(3) *1st, 2d, 3d, 4th and 5th echelon.* The symbol X indicates the echelon responsible for performing that particular maintenance operation, but does not necessarily indicate that repair parts will be stocked at that level. Echelons higher than the echelon marked by X are authorized to perform the indicated operation.

(4) *Tools required.* This column indicates codes assigned to each individual tool equipment, test equipment, and maintenance equipment referenced. The grouping of codes in this column indicates the tool, test, and maintenance equipment required to perform the maintenance function.

(5) *Remarks.* Entries in this column will be utilized when necessary to clarify any of the data cited in the preceding columns.

c. Columns in the allocation of tools for maintenance functions are as follow:

(1) *Tools required for maintenance functions.* This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

(2) *1st, 2d, 3d, 4th and 5th echelon.* A dagger (†) indicates the echelons allocated the facility.

(3) *Tool code.* This column lists the tool code assigned.

(4) *Remarks.* Entries in this column are used to clarify data in the other columns.

2. Maintenance By Using Organizations

When this equipment is used by signal service organizations organic to theater headquarters or

communication zones to provide theater communications, those maintenance functions allocated up to and including fourth echelon are authorized to the organization operating this equipment.

3. Mounting Hardware

The basic entries of the maintenance allocatio chart do not include mounting hardware such a screws, nuts, bolts, washers, brackets, clamps, et

Section II. MAINTENANCE ALLOCATION CHART

(1) PART OR COMPONENT	(2) MAINTENANCE FUNCTION	(3) 1ST ECH.	(4) 2ND ECH.	(5) 3RD ECH.	(6) 4TH ECH.	(7) 5TH ECH.	(8) TOOLS REQUIRED	(9) REMARKS
TELETYPEWRITER CENTRAL OFFICE AN/MGC-9	service	X						Interior
			X					Exterior
	inspect		X				2,3	Interior and Exterior
	test		X				1	Continuity Shelter Signal and Power Circuits
	rebuild					X	2,3	
SHELTER, ELECTRICAL EQUIPMENT S-190/MGC-9	rebuild					X	2,3	
BRACKETS AND BRACKET ASSEMBLIES	replace				X			Fabricate
CABLE ASSEMBLIES	replace		X					
CABLE	replace		X				2,3	
CONNECTORS	replace		X				2,3	See separate MAC for U-185/G
CLOCK	replace		X				2	
CONDUIT ASSEMBLIES								
BALLAST, LAMP	replace		X				2	
CONNECTORS, RECEPTACLE, ELECTRICAL	replace		X				2,3	
FILTERS, RADIO INTERFERENCE	replace		X				2	
JACKS, TELEPHONE	replace		X				2	
LAMPHOLDERS	replace		X				2	
LAMPS	replace	X						
POSTS, BINDING	replace		X				2	
SHIELD, ELECTRIC LIGHT	replace		X					
STARTERS, LAMP, FLUORESCENT	replace	X						
SWITCHES	replace		X				2	
CURTAIN, BLACKOUT	replace		X				2	
FANS, VENTILATING								
CABLE, ELECTRICAL	replace		X				2	
CAPACITORS	replace		X				2	
CLAMP, CAPACITOR	replace				X			Fabricate
CONNECTORS, PLUG, ELECTRICAL	replace		X				2	
GASKETS	replace			X				Fabricate
IMPELLER, FAN	replace		X				2	
MOTOR, A.C.	replace		X				2	
HEATER, SPACE, ELECTRICAL								
CABLE, ELECTRICAL	replace		X				2	
CONNECTORS	replace		X				2	
GRID, HEATING ELEMENT	replace		X				2	
IMPELLER, FAN	replace		X				2	

(1) PART OR COMPONENT	(2) MAINTENANCE FUNCTION	(3) 1ST ECH.	(4) 2ND ECH.	(5) 3RD ECH.	(6) 4TH ECH.	(7) 5TH ECH.	(8) TOOLS REQUIRED	(9) REMARKS
AN/MGC-9 (continued)								
MOTOR, ALTERNATING CURRENT	replace		X				2	
SWITCHES	replace		X				2	
JACK PANEL ASSEMBLY								
BRACKETS	replace				X			Fabricate
HOLDER, DESIGNATION STRIP	replace				X			Fabricate
JACKS, TELEPHONE	replace		X				2	
LANTERN, ELECTRIC								
BATTERIES, BA-30	replace	X						
LAMP, INCANDESCENT	replace	X						
LIGHT, EXTENSION								
LAMP, INCANDESCENT	replace	X						
PANEL, POWER DISTRIBUTION								
BUS BAR	replace				X			Fabricate
CIRCUIT BREAKERS	replace		X				2	
LAMPS, GLOW	replace	X						
LAMPHOLDERS	replace		X				2	
METERS	replace		X				2	
TRANSFORMER	replace		X				2	
PANELS, SIGNAL AND POWER ENTRANCE								
CONNECTORS	replace		X				2	See Separate MAC for U-187/G
POSTS, BINDING	replace		X				2	
CAP, NEOPRENE	replace		X					
TERMINAL, GROUND	replace			X				Fabricate
SHELTER								
DOOR ASSEMBLIES								
FILTERS, AIR CONDITIONING	replace		X				2	

PART OR COMPONENT	(2) MAINTENANCE FUNCTION	(3) 1ST ECH.	(4) 2ND ECH.	(5) 3RD ECH.	(6) 4TH ECH.	(7) 5TH ECH.	(8) TOOLS REQUIRED	(9) REMARKS
AN/MGC-9 (continued)								
FRAME, AIR FILTER	replace				X			Fabricate
GASKETS	replace			X			2	
GUARD, AIR FILTER	replace				X			Fabricate
HANDLES, DOOR	replace		X				2	
HINGE ASSEMBLIES	replace		X				2	
LATCH, DOOR	replace		X				2	
LOUVER ASSEMBLY	replace			X			2	
PANELS, DUTCH DOOR	replace				X		2	
EYEBOLT	replace		X					
LIFTS, TIE EYE	replace			X			2	
MOLDINGS	replace				X			
PLUG, DRAIN	replace		X				2	
SKIDS	replace				X		2	
STEPS, FOLDING	replace		X				2	
TAPE, ADHESIVE, RUBBER	replace		X					
SHELF ASSEMBLIES	replace				X			Fabricate
TABLE-TOP ASSEMBLIES	replace				X			Fabricate
TACK BOARD ASSEMBLIES	replace				X			Fabricate

Section III. ALLOCATION OF TOOLS FOR MAINTENANCE FUNCTIONS

(1) TOOLS REQUIRED FOR MAINTENANCE FUNCTIONS	(2) 1ST ECH	(3) 2ND ECH	(4) 3RD ECH	(5) 4TH ECH	(6) 5TH ECH.	(7) TOOL CODE	(8) REMARKS
AN/MGC-9							
MULTIMETER AN/URM-105*		†	†	†	†	1	* If not available use TS-297 or TS-352/U
TOOL KIT, GENERAL MECHANIC		†	†	†	†	2	
SOLDERING IRON TL-117		†	†	†	†	3	

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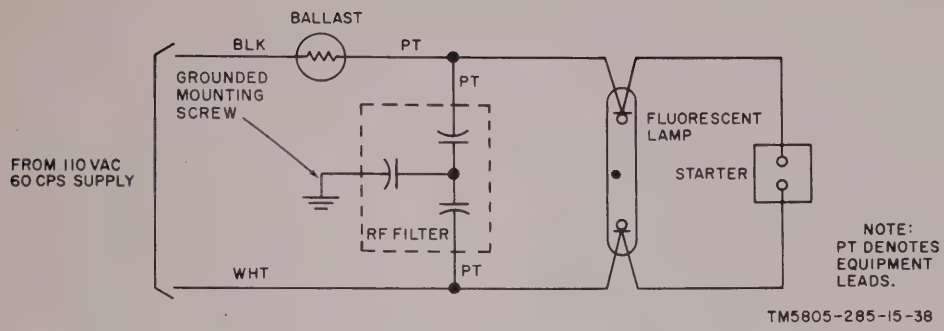


Figure 40. Fluorescent light fixture, schematic-wiring diagram.

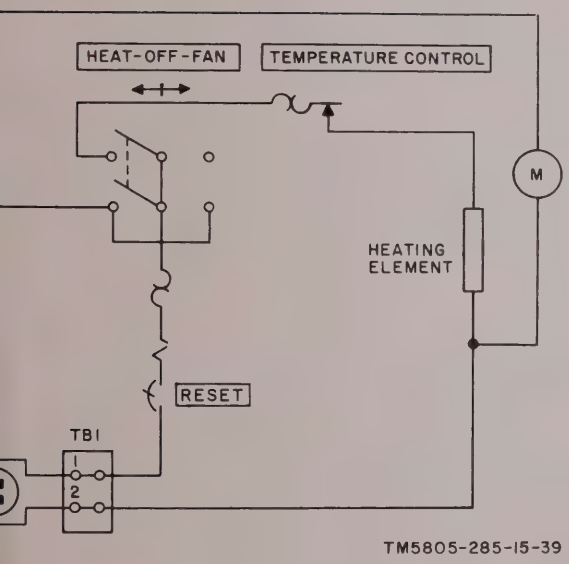


Figure 41. Electric heater, wiring diagram.

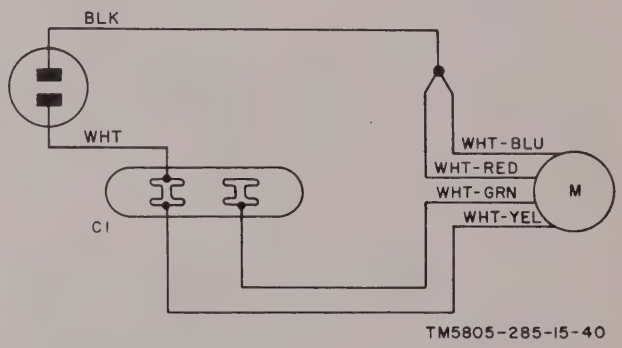


Figure 42. Exhaust bolwer, wiring diagram.

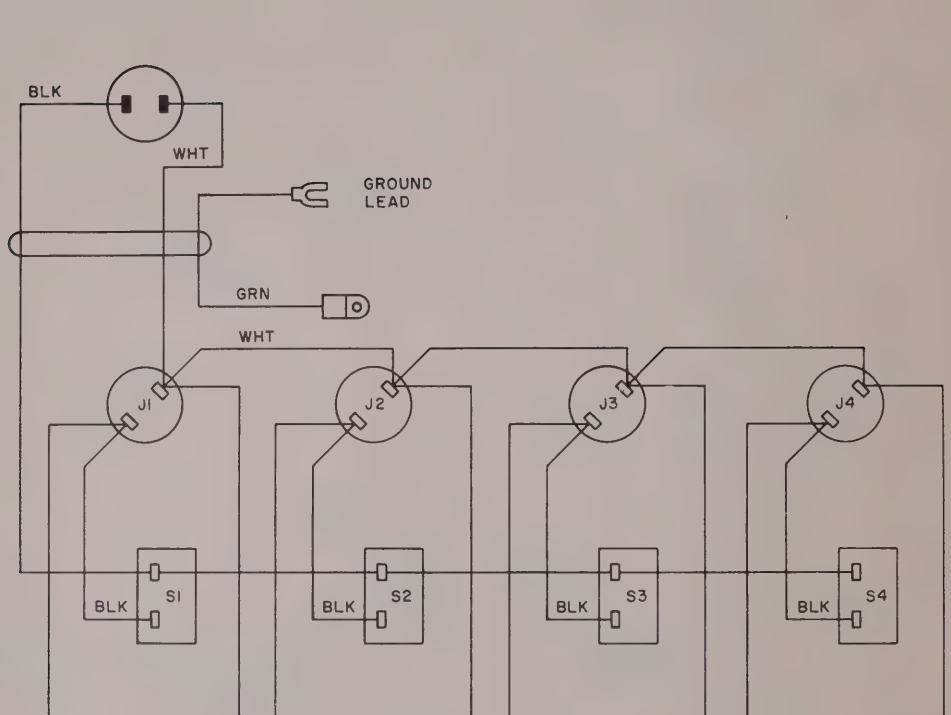
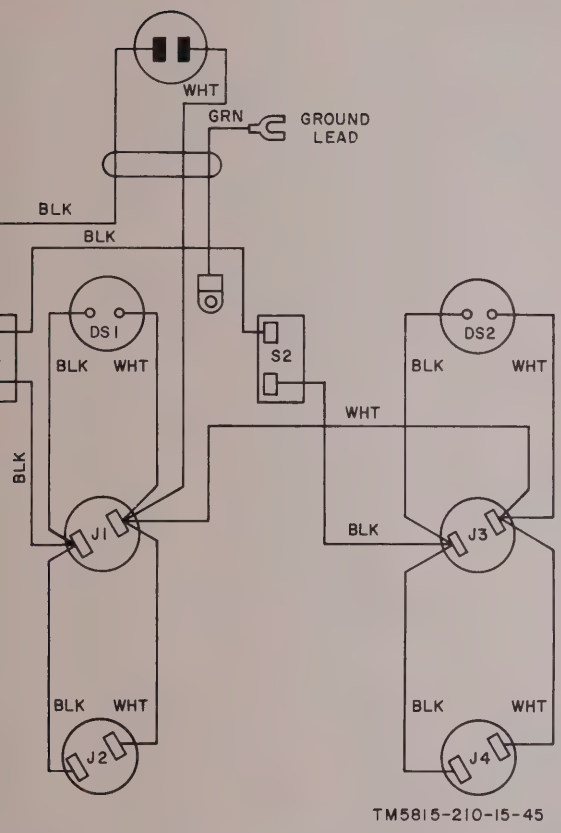
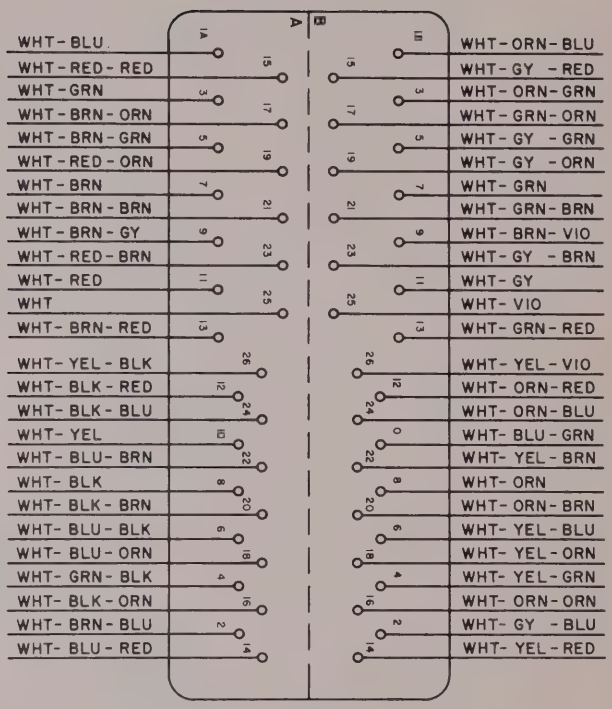


Figure 43. TA–182/U switch box, wiring diagram.



re 44. *TT–4A/TG and TH–5/TG switch panel, wiring diagram.*



NOTES

1. CONNECTOR AS SEEN FROM WIRING SIDE.
2. WIRES CONNECTED TO TERMINALS 1A AND 1B, 2A AND 2B ETC., ARE PAIRED WIRES.
3. BLUE AND RED SPARE WIRES (NOT SHOWN) ARE TURNED BACK AND SEWN INTO FORM.

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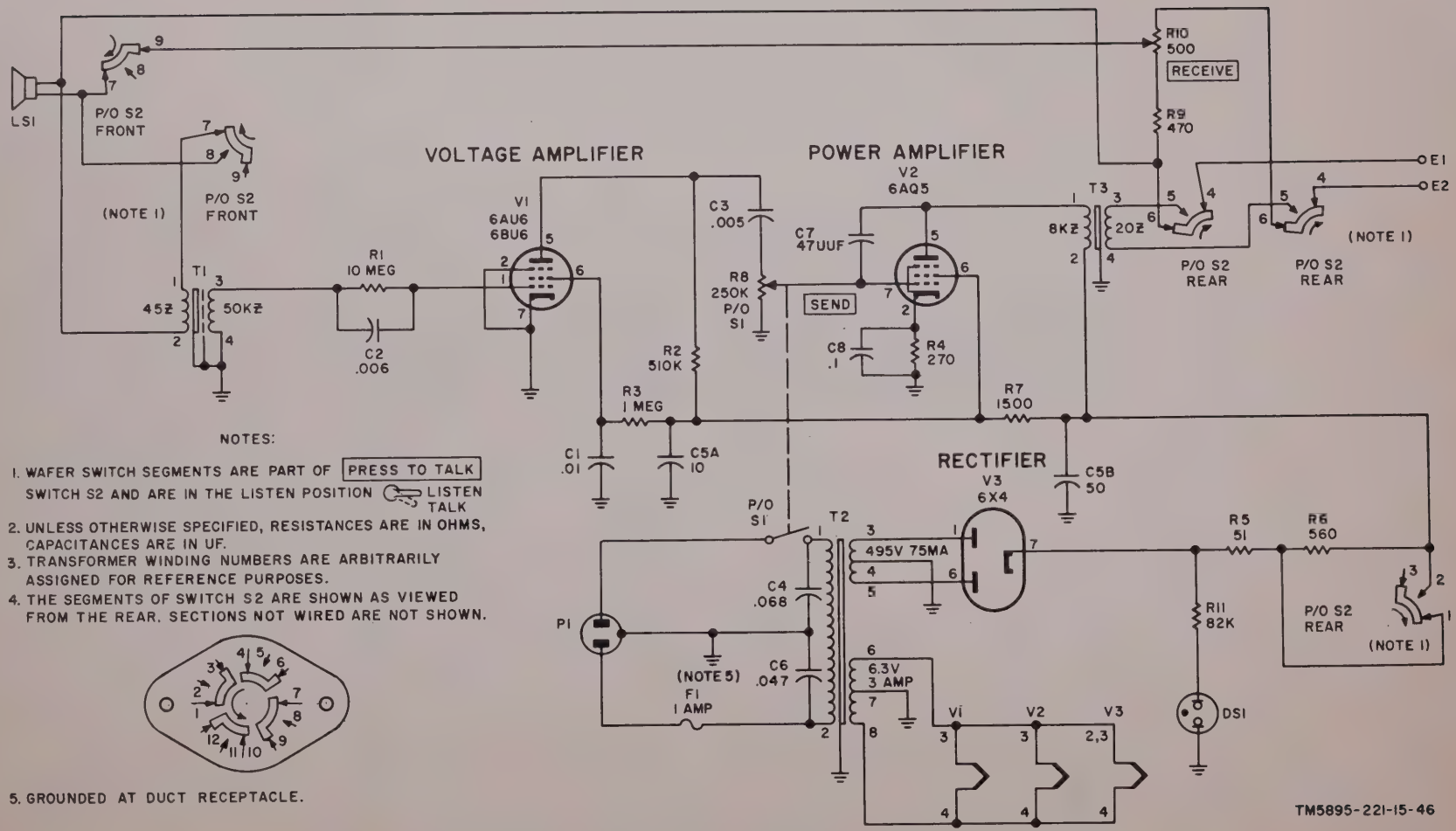
Figure 45. 26-pair receptacle, wiring digaram.



NOTES:

1. WAFER SWITCH SEGMENTS ARE PART OF PRESS TO TALK SWITCH S2 AND ARE IN THE LISTEN POSITION (LISTEN / TALK)
2. UNLESS OTHERWISE SPECIFIED, RESISTANCES ARE IN OHMS, CAPACITANCES ARE IN UF.
3. TRANSFORMER WINDING NUMBERS ARE ARBITRARILY ASSIGNED FOR REFERENCE PURPOSES.
4. THE SEGMENTS OF SWITCH S2 ARE SHOWN AS VIEWED FROM THE REAR. SECTIONS NOT WIRED ARE NOT SHOWN.

5. GROUNDED AT DUCT RECEPTACLE.

Figure 46. Intercommunication Station LS–147D/FI, schematic diagram.

By Order of *Wilber M. Brucker*, Secretary of the Army

G. H. DECKER,
General, United States Army,
Chief of Staff.

cial

R. V. LEE,
jor General, United States Army,
The Adjutant General.

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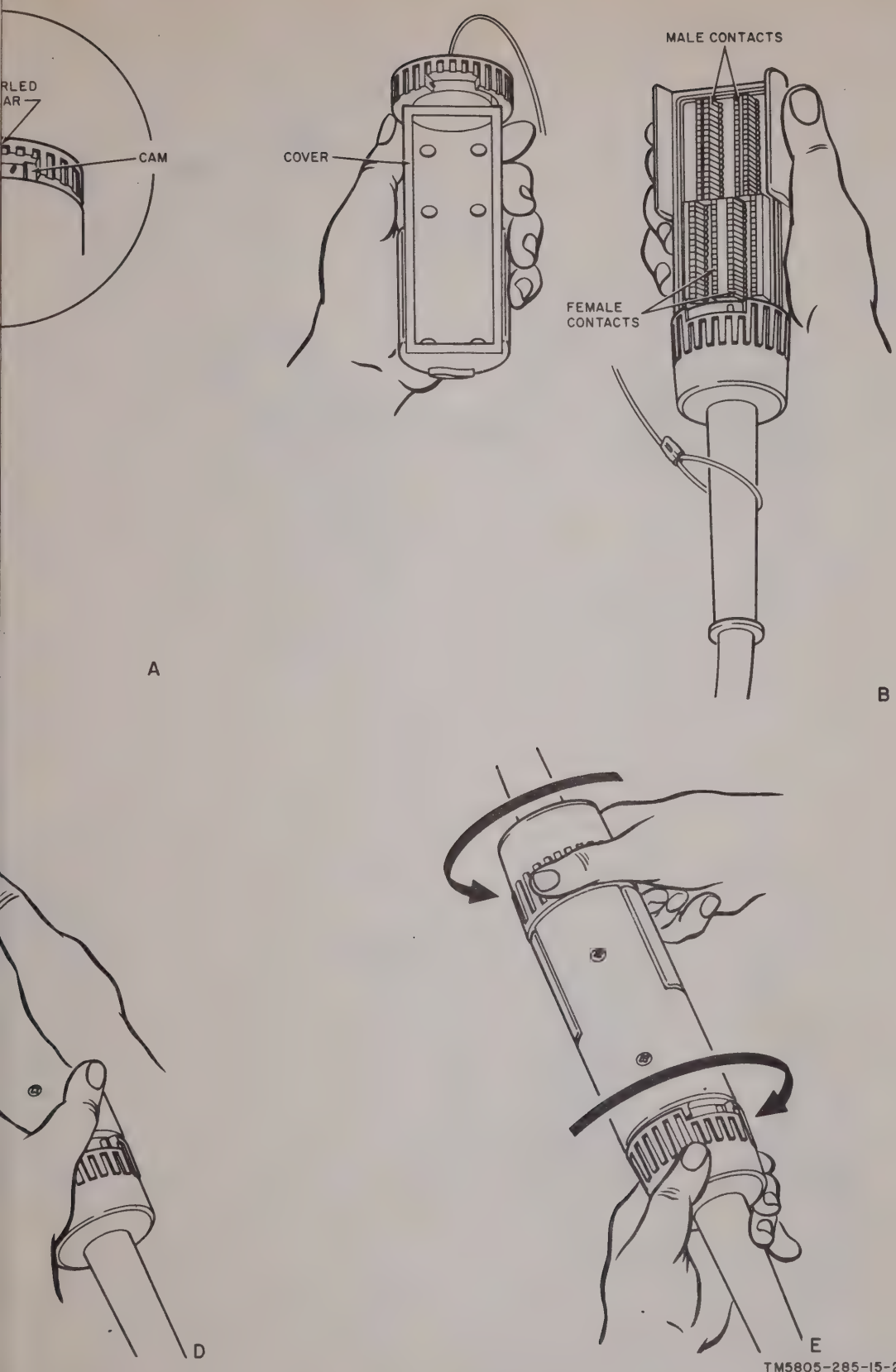
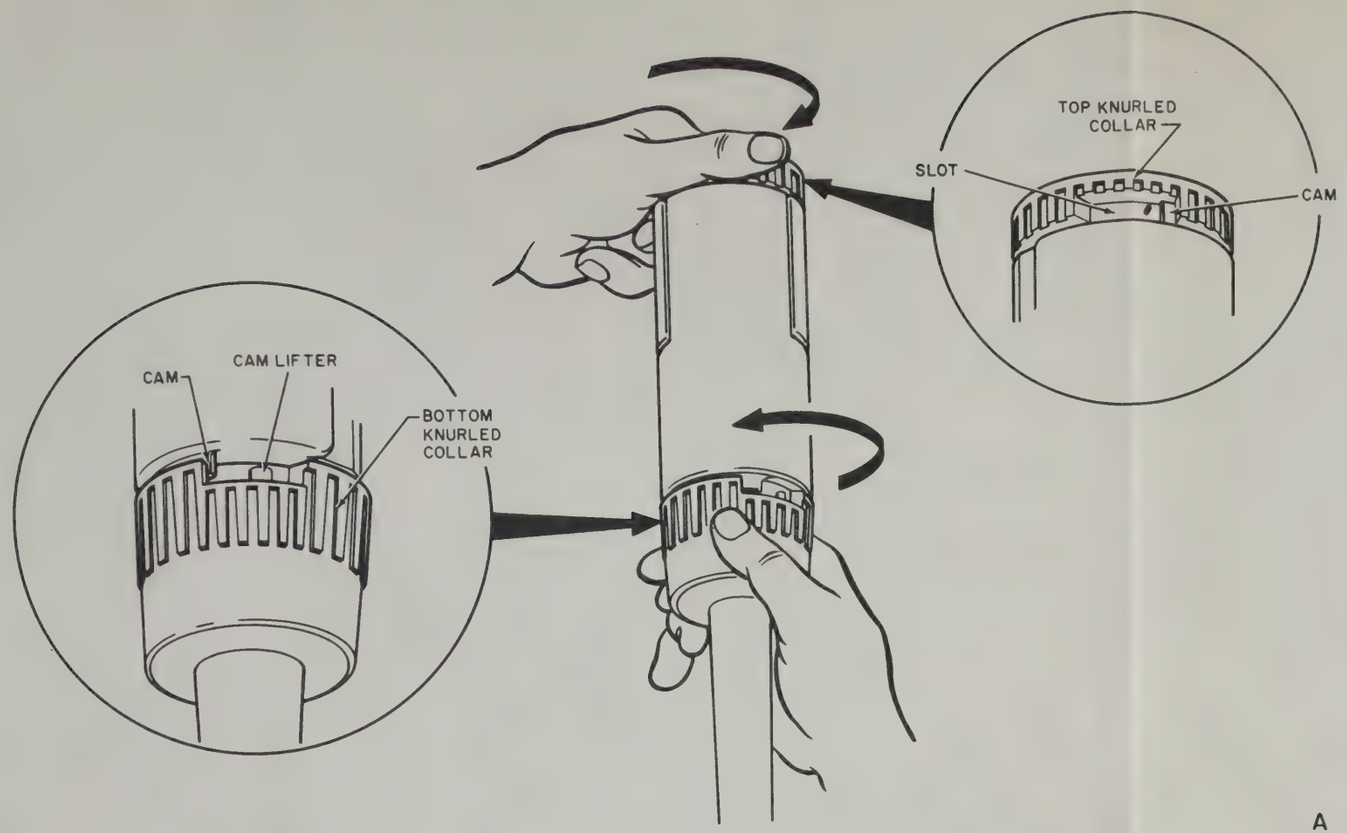
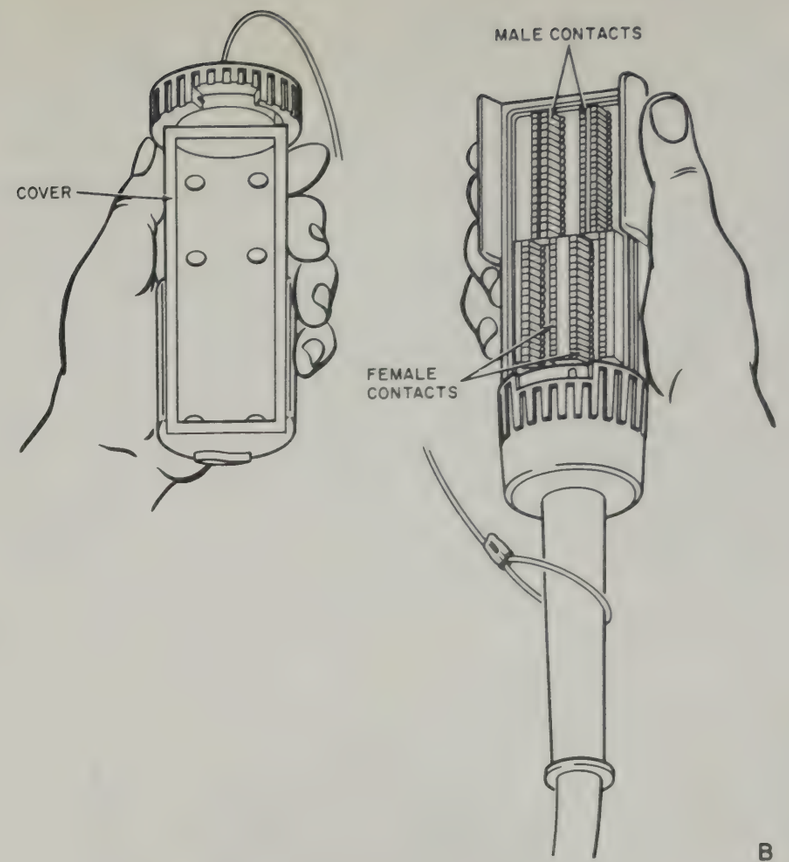
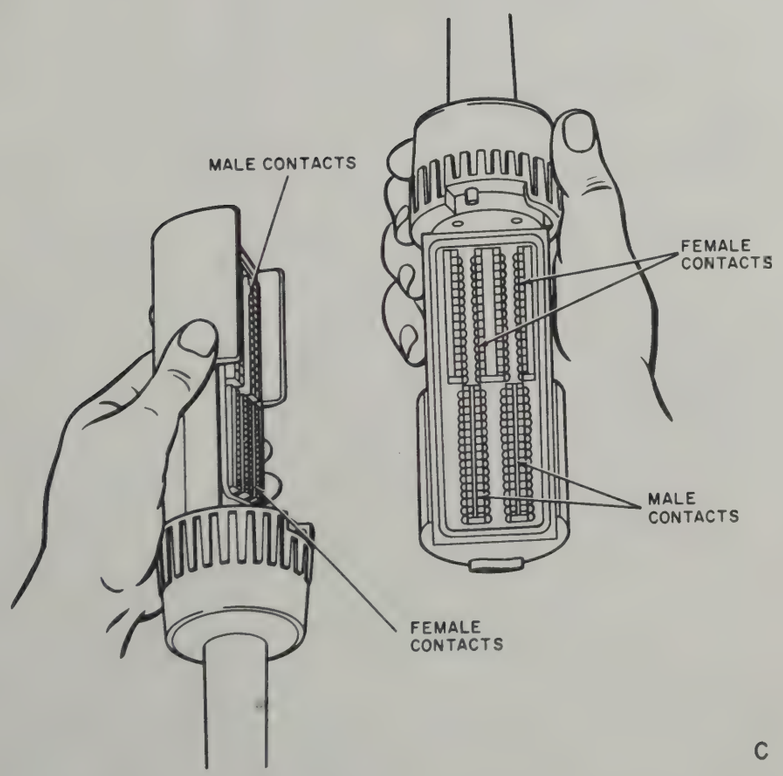
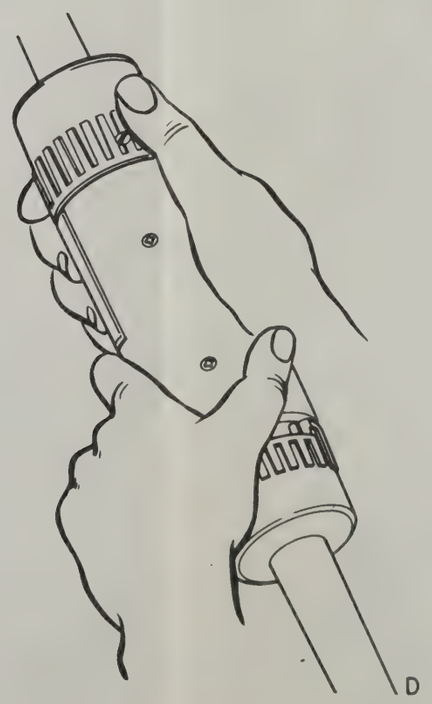


6-pair connectors.









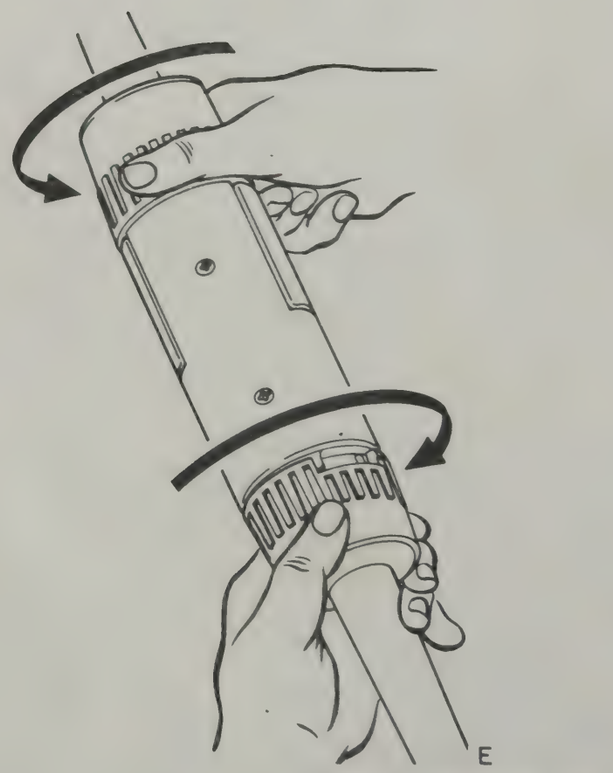
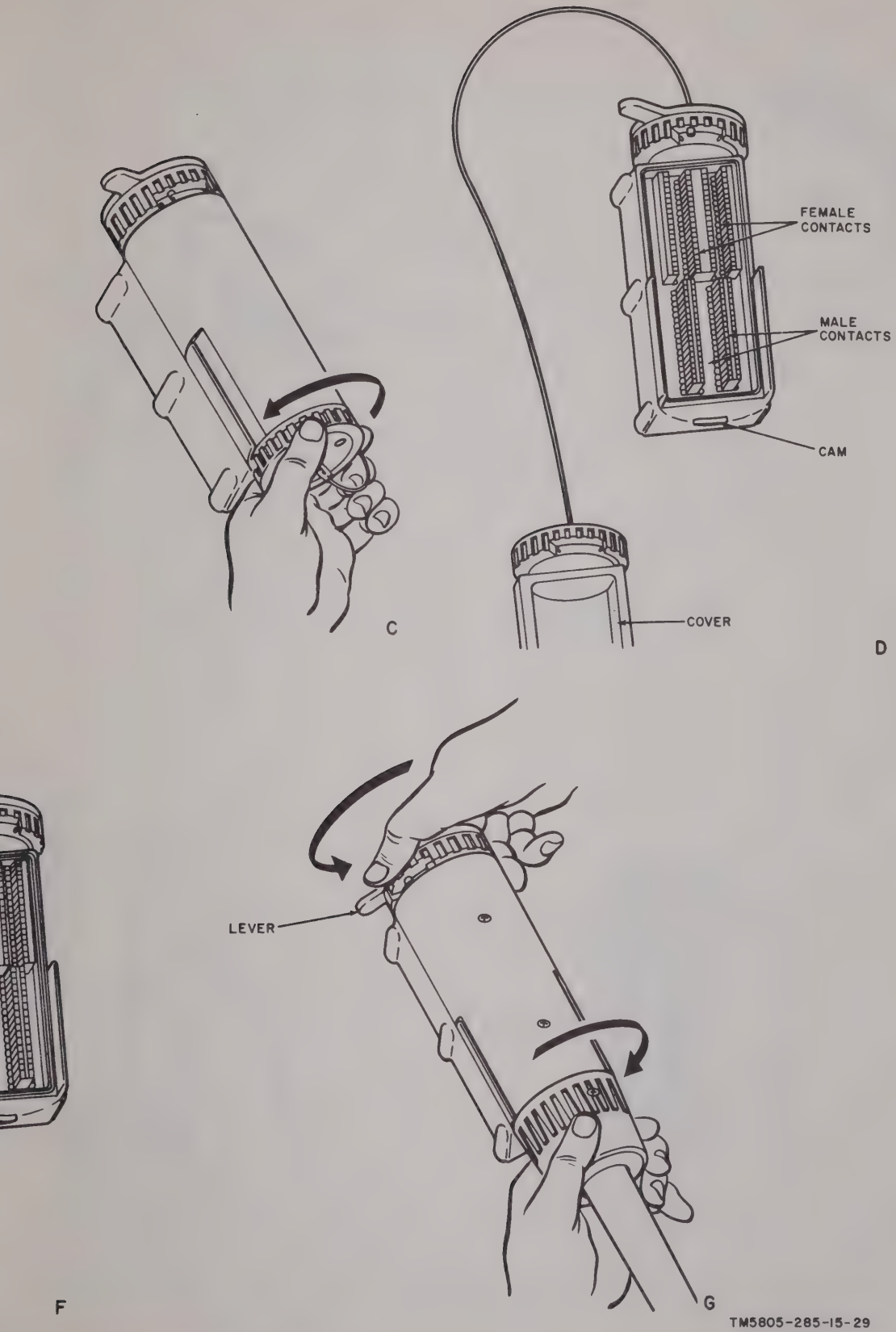


Figure 30. Coupling 26-pair connectors.



r to the 26-pair receptacle.

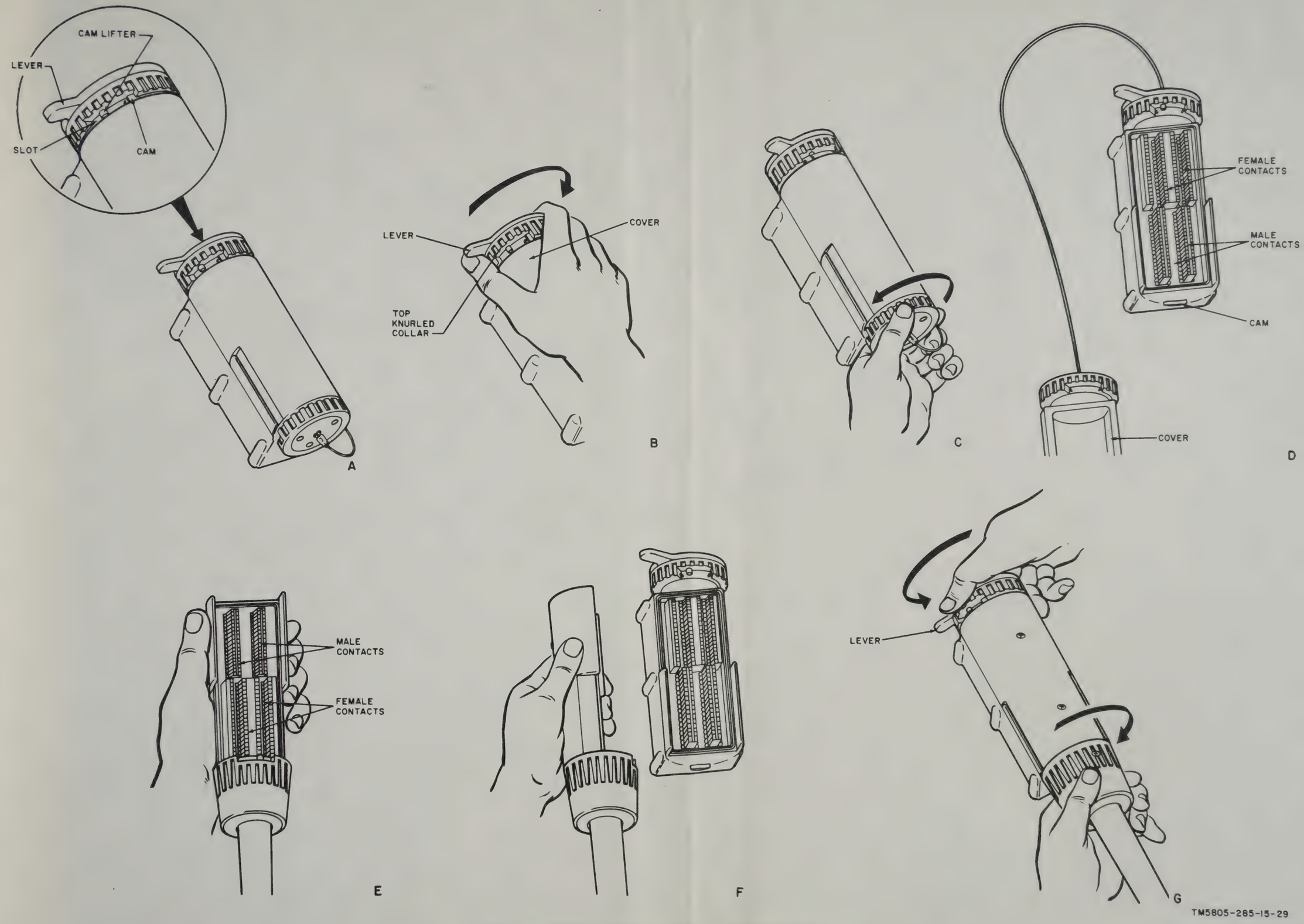
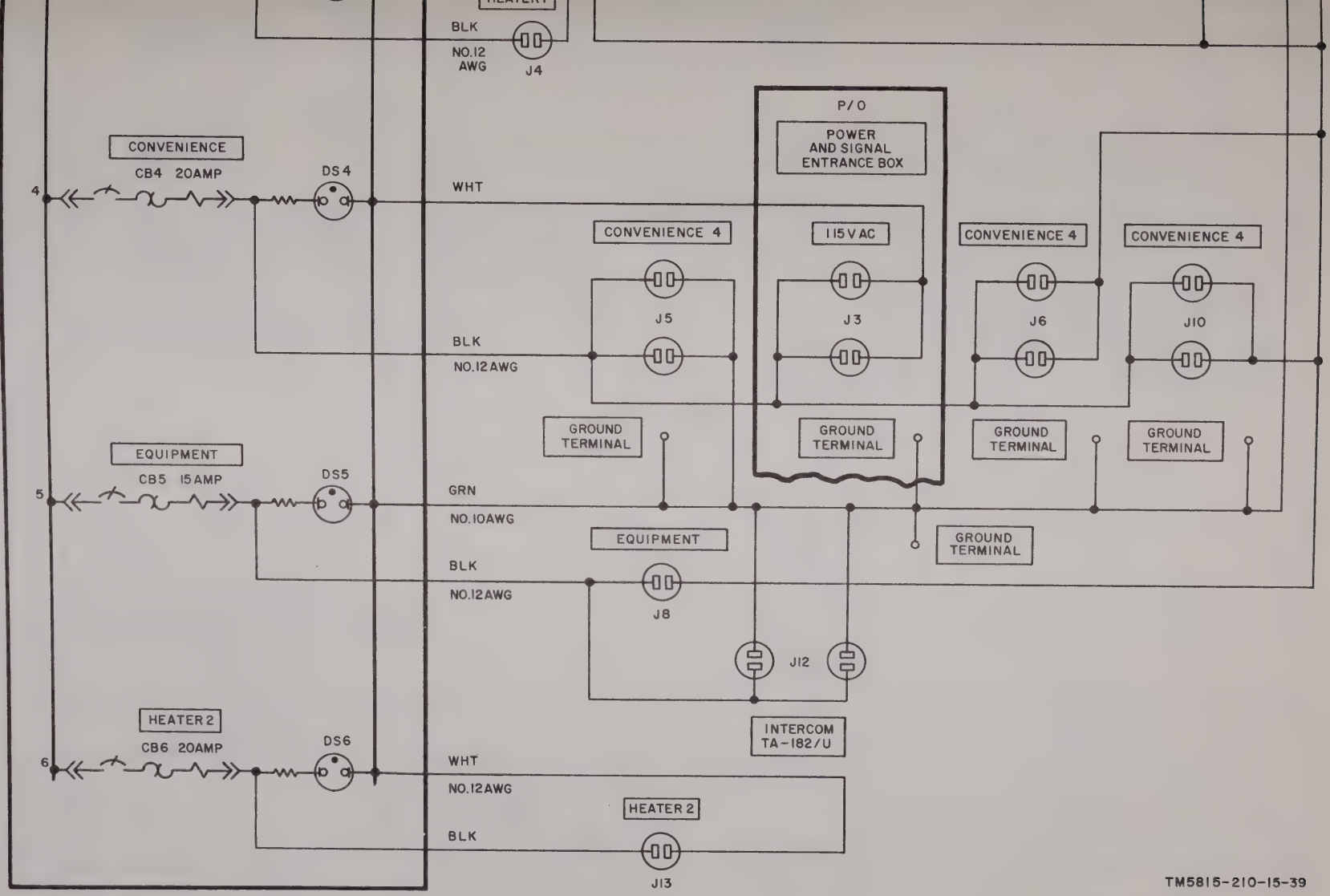


Figure 31. Connecting the 26-pair connector to the 26-pair receptacle.



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ing diagram.

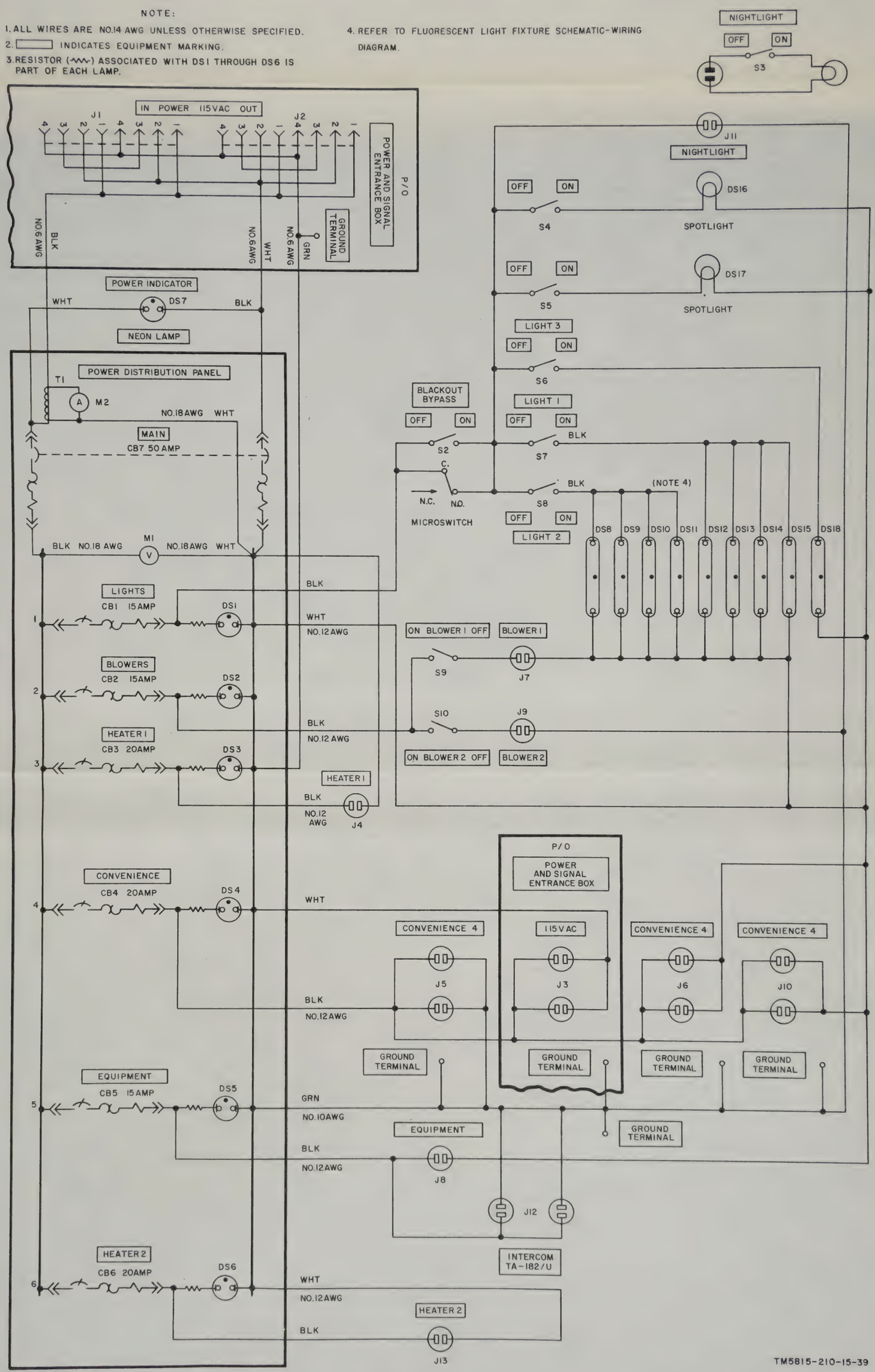
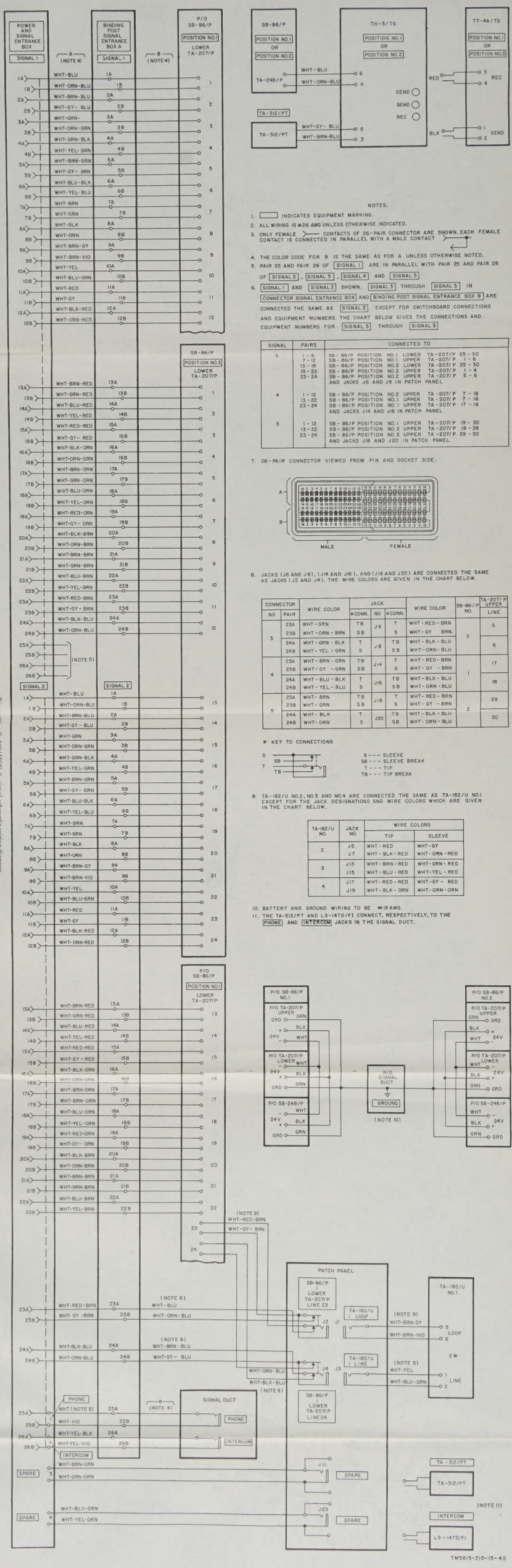


Figure 38. S-190/MGC-9, power schematic-wiring diagram.

TM5815-210-15-39



NOTES:

1. ▭ INDICATES EQUIPMENT MARKING.
2. ALL WIRING IS #26 AWG UNLESS OTHERWISE INDICATED.
3. ONLY FEMALE ⟩ CONTACTS OF 26-PAIR CONNECTOR ARE SHOWN. EACH FEMALE CONTACT IS CONNECTED IN PARALLEL WITH A MALE CONTACT ⟩
4. THE COLOR CODE FOR B IS THE SAME AS FOR A UNLESS OTHERWISE NOTED.
5. PAIR 25 AND PAIR 26 OF [SIGNAL 1] ARE IN PARALLEL WITH PAIR 25 AND PAIR 26 OF [SIGNAL 2], [SIGNAL 3], [SIGNAL 4] AND [SIGNAL 5]
6. [SIGNAL 1] AND [SIGNAL 2] SHOWN. [SIGNAL 3] THROUGH [SIGNAL 5] IN [CONNECTOR SIGNAL ENTRANCE BOX] AND [BINDING POST SIGNAL ENTRANCE BOX B] ARE CONNECTED THE SAME AS [SIGNAL 2] EXCEPT FOR SWITCHBOARD CONNECTIONS AND EQUIPMENT NUMBERS. THE CHART BELOW GIVES THE CONNECTIONS AND EQUIPMENT NUMBERS FOR [SIGNAL 3] THROUGH [SIGNAL 5]

SIGNAL	PAIRS	CONNECTED TO
3	1 - 6	SB-86/P POSITION NO.1 LOWER TA-207/P 25-30
	7 - 12	SB-86/P POSITION NO.1 UPPER TA-207/P 1-6
	13 - 18	SB-86/P POSITION NO.2 LOWER TA-207/P 25-30
	19 - 22	SB-86/P POSITION NO.2 UPPER TA-207/P 1-4
	23 - 24	SB-86/P POSITION NO.2 UPPER TA-207/P 5-6 AND JACKS J6 AND J8 IN PATCH PANEL
4	1 - 12	SB-86/P POSITION NO.2 UPPER TA-207/P 7-18
	13 - 22	SB-86/P POSITION NO.1 UPPER TA-207/P 7-16
	23 - 24	SB-86/P POSITION NO.1 UPPER TA-207/P 17-18 AND JACKS J14 AND J16 IN PATCH PANEL
5	1 - 12	SB-86/P POSITION NO.1 UPPER TA-207/P 19-30
	13 - 22	SB-86/P POSITION NO.2 UPPER TA-207/P 19-28
	23 - 24	SB-86/P POSITION NO.2 UPPER TA-207/P 29-30 AND JACKS J18 AND J20 IN PATCH PANEL

7. 26-PAIR CONNECTOR VIEWED FROM PIN AND SOCKET SIDE:

8. JACKS (J6 AND J8), (J14 AND J16), AND (J18 AND J20) ARE CONNECTED THE SAME AS JACKS (J2 AND J4). THE WIRE COLORS ARE GIVEN IN THE CHART BELOW.

CONNECTOR NO	PAIR	WIRE COLOR	JACK *CONN.	JACK NO	JACK *CONN.	WIRE COLOR	SB-86/P NO.	TA-207/P UPPER LINE
3	23A	WHT-GRN	TB	J6	T	WHT-RED-BRN	2	5
	23B	WHT-ORN-BRN	SB		S	WHT-GY BRN.		
	24A	WHT-GRN-BLK	T	J8	TB	WHT-BLK-BLU		6
	24B	WHT-YEL-GRN	S		SB	WHT-ORN-BLU		
4	23A	WHT-BRN-GRN	TB	J14	T	WHT-RED-BRN	1	17
	23B	WHT-GY -GRN	SB		S	WHT-GY -BRN		
	24A	WHT-BLU-BLK	T	J16	TB	WHT-BLK-BLU		18
	24B	WHT-YEL-BLU	S		SB	WHT-ORN-BLU		
5	23A	WHT-BRN	TB	J18	T	WHT-RED-BRN	2	29
	23B	WHT-GRN	SB		S	WHT-GY -BRN		
	24A	WHT-BLK	T	J20	TB	WHT-BLK-BLU		30
	24B	WHT-ORN	S		SB	WHT-ORN-BLU		

* KEY TO CONNECTIONS

9. TA-182/U NO.2, NO.3 AND NO.4 ARE CONNECTED THE SAME AS TA-182/U NO.1 EXCEPT FOR THE JACK DESIGNATIONS AND WIRE COLORS WHICH ARE GIVEN IN THE CHART BELOW.

TA-182/U NO.	JACK NO.	WIRE COLORS TIP	WIRE COLORS SLEEVE
2	J5	WHT-RED	WHT-GY
	J7	WHT-BLK-RED	WHT-ORN-RED
3	J13	WHT-BRN-RED	WHT-GRN-RED
	J15	WHT-BLU-RED	WHT-YEL-RED
4	J17	WHT-RED-RED	WHT-GY- RED
	J19	WHT-BLK-ORN	WHT-ORN-ORN

10. BATTERY AND GROUND WIRING TO BE #18 AWG.
11. THE TA-312/PT AND LS-1470/FI CONNECT, RESPECTIVELY, TO THE [PHONE] AND [INTERCOM] JACKS IN THE SIGNAL DUCT.

Figure 39. SB-1961/MYC-4, signal schematic wiring diagram.